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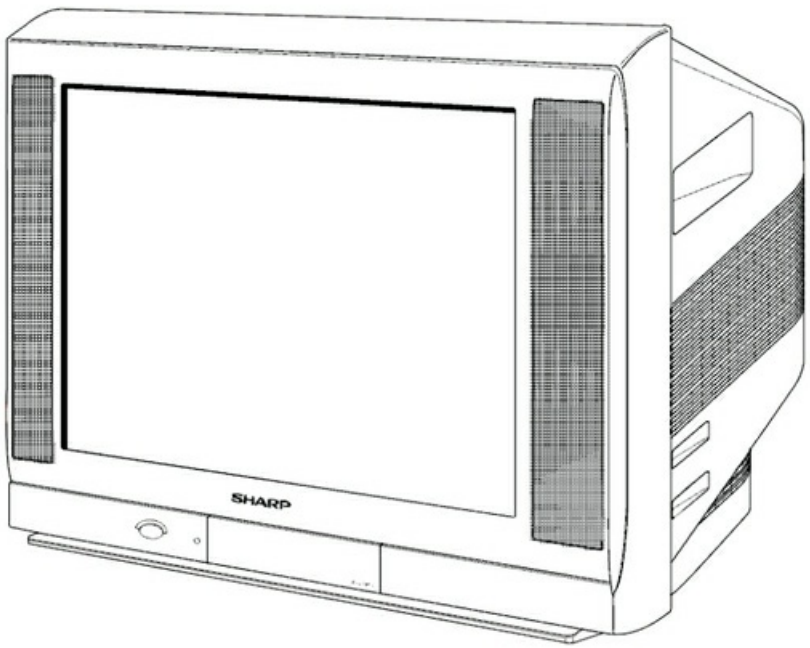
# SHARP 20F540 SERVICE MANUAL

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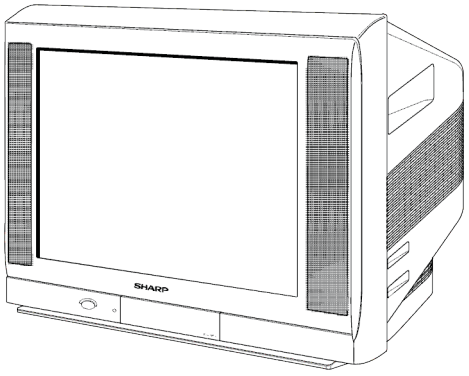
# SHARP SERVICE MANUAL



## COLOR TELEVISION

***Chassis No. GA-2***

## MODELS 20F540

In the interests of user-safety (Required by safety regulations in some countries ) the set should be restored to its original condition and only parts identical to those specified should be used.

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## ELECTRICAL SPECIFICATIONS

POWER INPUT ..... AC 120 V, 60 Hz
POWER RATING ..... 90W
PICTURE SIZE ..... 1,239 $cm^2$ (192sq inch)
CONVERGENCE ..... Magnetic
SWEEP DEFLECTION ..... Magnetic
FOCUS ..... Uni-Bi
INTERMEDIATE FREQUENCIES
  Picture IF Carrier Frequency ..... 45.75 MHz
  Sound IF Carrier Frequency ..... 41.25 MHz
  Color Sub-Carrier Frequency ..... 42.17 MHz (Nominal)
AUDIO POWER
  OUTPUT RATING ..... 2.5 W(RMS) x 2pcs
SPEAKER
  SIZE ..... 5 x 12 cm, 2pcs
  VOICE COIL IMPEDANCE ..... 16 ohm at 400 Hz
ANTENNA INPUT IMPEDANCE
  VHF/UHF ..... 75 ohm Unbalanced
TUNING RANGES
  VHF-Channels ..... 2 thru 13
  UHF-Channels ..... 14 thru 69
  CATV Channels ..... 1 thru 125
  (EIA, Channel Plan U.S.A.)

***Specifications are subject to change without prior notice.***


**SHARP CORPORATION**

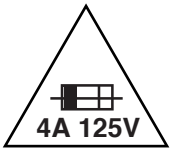
This document has been published to be used for after sales service only.
The contents are subject to change without notice.

# IMPORTANT SERVICE SAFETY PRECAUTION

**■ Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:**

## WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulating material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit. The isolated ground system is for the low B+ DC voltages and the secondary circuit of the high voltage transformer.
   To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.




**CAUTION**: FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 4A-125V FUSE.

## SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

**When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)**

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

## X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation, if the high voltage is as specified in the "High Voltage Check" instructions.
   It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in the glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter.
   The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value –no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and;also, under certain conditions, may produce radiation in exceeding of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver.
   Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

# IMPORTANT SERVICE SAFETY PRECAUTION

**(Continued)**

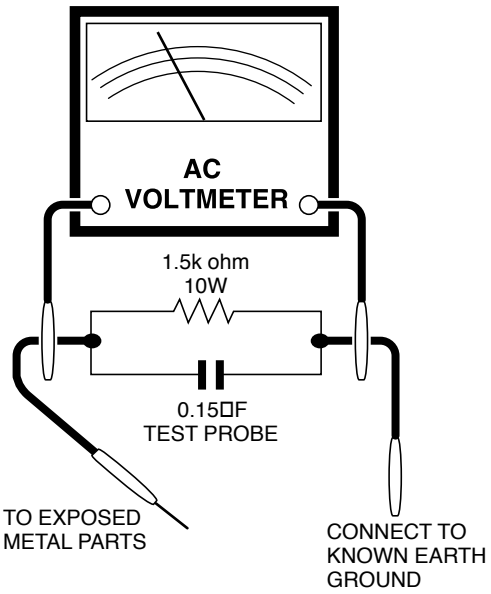
## BEFORE RETURNING THE RECEIVER

## (Fire & Shock Hazard)

**Before returning the receiver to the user, perform the following safety checks.**

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 120 volt AC outlet, (Do not use an isolation transformer for this test).
- Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15μF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.
  All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)
  Any current measured must not exceed 0.5 milliamp. Any measurements not within the limits outlined above indicate of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



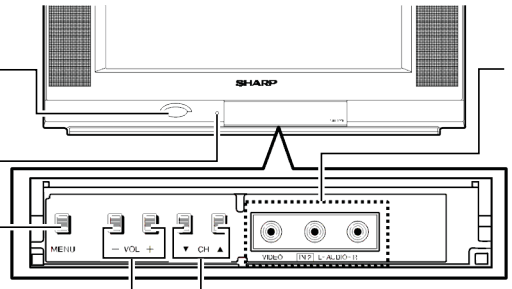

## SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.
Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠" and shaded areas in the Replacement Parts Lists and Schematic Diagrams.

For continued protection, replacement parts must be identical to those used in the original circuit. The use of substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

# LOCATION OF USER'S CONTROL

## Front Panel



**POWER**
Press → On.
Press again → Off.

SENSOR AREA FOR REMOTE CONTROL

**MENU**
Press → Accesses MAIN MENU.
Press again → Exits MAIN MENU.

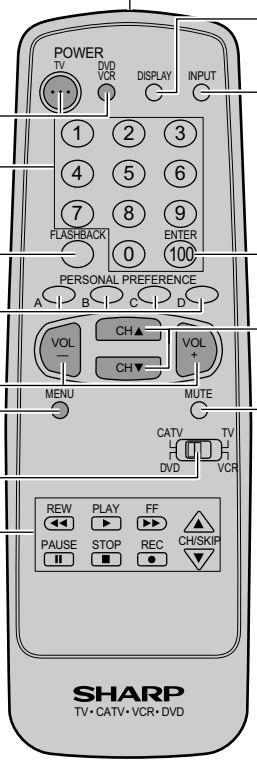
**VOLUME UP/DOWN**
(+) Increases sound.
(–) Decreases sound.

**VIDEO IN 2 L-AUDIO-R**

(INSIDE DOOR)

**CHANNEL UP/DOWN**
(▲) Selects next higher channel.
(▼) Selects next lower channel.

## Basic Remote Control Functions




Infrared Transmitter Window

DISPLAY
Press Displays receiving channel for four seconds.
Press again Removes display.
• Temporarily displays receiving channel when in Closed Caption mode.

**INPUT**
**Press Switch to external video INPUT 1 mode.**
**Press 2 times** Switch to external video INPUT 2 mode.
Press 3 times Switch to external video INPUT 3 mode or COMPONENT mode.
Press 4 times Switch back to the original TV mode.

ENTER
Used in some instances where a Cable Converter Box requires an "enter" command after selecting channels, when using the REMOTE KEYPAD button.

CHANNEL UP/DOWN
(8 ) Selects next higher channel.
(9 ) Selects next lower channel.
• See pages 28 ~ 30 for channel presetting.
• Moves the " [ " mark of the MENU screens.

MUTE
Press Mutes sound.
Press again Restores sound.
• CLOSED CAPTION appears when sound is muted.

POWER
Press On.
Press again Off.

REMOTE KEYPAD
Accesses any channel from keypad.

FLASHBACK
Returns to previous channel.

PERSONAL PREFERENCE
With the Personal Preference buttons, you can program your favorite programs by using the 4 categories A, B, C and D. The channels can be accessed quickly by using these buttons.

VOLUME UP/DOWN
(+) Increases sound.
(–) Decreases sound.
• In menu mode, changes or selects the TV adjustments.

MENU
Press Accesses MAIN MENU.
Press again Exits MAIN MENU.

CATV/DVD-TV/VCR MODE SELECT SWITCH
In TV/VCR position, sends power and channel select commands (Channel up/down and Random Access buttons) to the TV and VCR control.
In CATV/DVD position, sends power and channel select commands to a cable TV converter and DVD control.

DVD/VCR CONTROL

Note:

- The above shaded buttons on the Remote Control glow in the dark. To use the glow-in-the-dark display on the remote control, place it under a fluorescent light or other lighting.
- The phosphorescent material contains no radioactive or toxic material, so it is safe to use.
- The degree of illumination will vary depending on the strength of lighting used.
- The degree of illumination will decrease with time and depending on the temperature.
- The time needed to charge the phosphorescent display will vary depending on the surrounding lighting.
- Sunlight and fluorescent lighting are the most effective when charging the display.

# INSTALLATION AND SERVICE INSTRUCTIONS

**Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdrivers or TV alignment tools.**
**(2) Before performing adjustments, the TV set must be on at least 15 minutes.**

## CIRCUIT PROTECTION

**The receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.**

## X-RADIATION PROTECTOR CIRCUIT TEST

**After service has been performed on the horizontal deflection system, high voltage system, B+ system, test the X-Radiation protection circuit to ascertain proper operation as follows:**

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Receive a good local channel.
4. Connect a digital voltmeter to P603 Pin3 and make sure that the voltmeter reads 18.9 ±1.1V.
5. Apply external 24.5V DC at P603 Pin3 by using an external DC supply, TV must be shut off.
6. To reset the protector, unplug the AC cord at least 4 second before plugging in again. Now make sure that normal picture appears on the screen.
7. If the operation of the horizontal oscillator does not stop in step 5, the circuit must be repaired before the set is returned to the customer.

## HIGH VOLTAGE CHECK

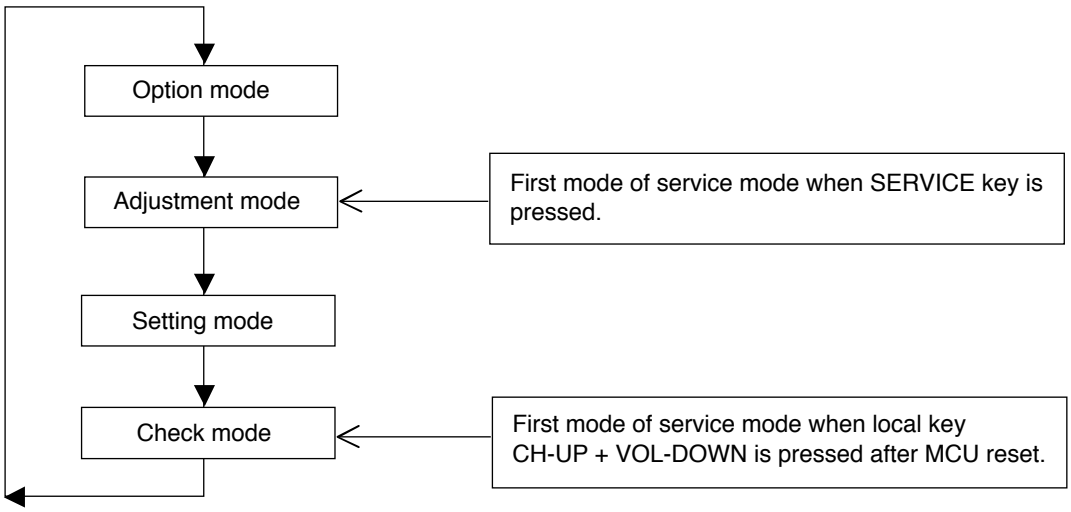
**High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:**

1. Connect an accurate high voltage meter between ground and anode of picture tube.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with a strong air signal or a properly tuned in test signal.
3. Enter the service mode and set Y-mute ON by using Service R/C.
4. The voltage should be approximately 28.6kV (at zero beam).
   If a correct reading cannot be obtained, check circuitry for malfunctioning components. After the voltage test, make Y-mute off to the normal mode.

# SERVICE MODE

## Service Mode Overview

1. Service mode is entered by SERVICE key input or CH-UP +VOL-DOWN input during reset.
2. Service mode is cleared by entering SERVICE key or CH-UP +VOL-DOWN key command during service mode.
3. If key input port (SERVICE) input is LOW, then it is in service mode.
4. During key input port (SERVICE) input is LOW, clearing service mode by key input SERVICE or CH-UP + VOL-DOWN is disabled.
5. Service mode can be switched to 4 modes as follows by key input MENU;


Option mode
Adjustment mode
First mode of service mode when SERVICE key is pressed.
Setting mode
Check mode
First mode of service mode when local key CH-UP + VOL-DOWN is pressed after MCU reset.

6. AFT processing is disabled during service mode. PLL setting data is set to fo data.
7. All user data are set to default during service mode. FAO and SPEAKER user settings are off and on respectively in service mode. Energy Save is off.
8. Sleep timer, View timer and Off timer are inactivated in Service mode.
9. Sound is muting in service mode except at Adjustment Items V20, M01, M02, M03, M04, M05, and M06.

## Adjustment Mode Items

# ADJUSTMENT METHOD

**Caution: to get into the service mode, one of the ways is press direct key for service items. the other ways is short the main chassis JA309 and JA402**

There is three stage of Service Mode data
First stage data from V01 ~ M06
to go into second stage of service mode data, press MENU key
Second stage data from F01 ~ F51
to go into third stage of service mode data, press MENU key
Third stage data from 001 ~ 020

Below is the contents of these data

First Stage

| No. | Item Name | IC | Register | Range | Default |
|---|---|---|---|---|---|
| V01 | SUB-PICTURE | 1 Chip | CONTRAST | 0~127 | 127 |
| V02 | SUB-TINT | 1 Chip | TINT | 0~127 | 64 |
| V03 | SUB-COLOR | 1 Chip | COLOR | 0~127 | 64 |
| V04 | SUB-BRIGHT | 1 Chip | BRIGHT | 0~255 | 128 |
| V05 | SUB-SHARP | 1 Chip | VIDEO-TONE | 0~63 | 32 |
| V06 | V-SHIFT | 1 Chip | V-SHIFT | 0~7 | 4 |
| V07 | H-SHIFT | 1 Chip | H-PHASE | 0~31 | 16 |
| V08 | RF-AGC | 1 Chip | RF-Delay | 0~127 | 127 |
| V09 | V-SIZE | 1 Chip | V-SIZE | 0~63 | 32 |
| V10 | PIF-VCO | 1 Chip | VIF-VCO | 0~63 | 32 |
| V11 | R-CUTOFF | 1 Chip | R-CUTOFF | 0~255 | 127 |
| V12 | G-CUTOFF | 1 Chip | G-CUTOFF | 0~255 | 127 |
| V13 | B-CUTOFF | 1 Chip | B-CUTOFF | 0~255 | 127 |
| V14 | R-DRIVE | 1 Chip | R-DRIVE | 0~127 | 64 |
| V15 | B-DRIVE | 1 Chip | B-DRIVE | 0~127 | 64 |
| V16 | SUB-COLOR(YUV) | 1 Chip | COLOR | 0~127 | 64 |
| V17 | SUB-TINT(YUV) | 1 Chip | BASEBAND-TINT | 0~127 | 64 |
| V18 | CC-POS | Micron | | 0~255 | 32 |
| V19 | (Vertical mode) | 1 Chip | V-MUTE,SERVICE | 0, 1, 2 | 0 |
| V20 | SUB-VOL | 1 Chip | A-ATT | 0~127 | 127 |
| V21 | H-VCO | 1 Chip | H-VCO | 0~7 | 4 |
| M01 | MTS-ATT | MTS | ATT | 0~15 | 10 |
| M02 | MTS-VCO | MTS | VCO | 0~63 | 32 |
| M03 | MTS-FILTER | MTS | FILTER | 0~63 | 28 |
| M04 | MTS-WIDEBAND | MTS | WIDEBAND | 0~63 | 27 |
| M05 | MTS-SPECTRAL | MTS | SPECTRAL | 0~63 | 32 |
| M06 | SUB-VOL | MTS | VOL | 0~63 | 63 |

Auto Adjustment Item
1. H-VCO (Currently need manual adj)
2. RF-AGC
3. PIF-VCO
4. MTS-FILTER

# ■ SELF ADJUSTMENT

## H-VCO

1. When there is H-VCO self-adjustment key input for adjustment item H-VCO, self-adjustment is performed.
2. H-FREE(1chip) is set to 1.
3. H-OUT is set by intelligent monitor output.
4. IM input is set as TIM input.
5. H-VCO(1chip) data is changed so that the number of input pulse is 125 inside 8ms interval.
6. When adjustment completed, OSD display and H-VCO self-adjustment status data of EEPROM are updated.
7. H-FREE(1chip), intelligent monitor output and IM input mode are recovered.

## RF-AGC

1. When there is RF-AGC self-adjustment key input for adjustment item RF-AGC, self-adjustment is performed.
2. AGC-OUT is set by intelligent monitor output.
3. IM input is set as AD input.
4. By decreasing RF-AGC (1chip) data from current RF-AGC adjustment value to 0, AFT input voltage becomes the maximum setting value.
5. Increase RF-AGC(1chip) data, when AFT input voltage is at (max. 0.3V) point, adjustment is completed.
6. When adjustment completed, OSD display and RF-AGC self-adjustment status data of EEPROM are updated.
7. Intelligent monitor output and IM input mode are recovered.

## PIF-VCO

1. When there is PIF-VCO self-adjustment key input for adjustment item PIF-VCO, self-adjustment is performed.
2. VIF-DEF(1chip) is set to 1.
3. AFC is set by intelligent monitor output.
4. IM input is set as AD input.
5. VIF-VCO(1chip) data is changed so that input voltage becomes 2.5V.
6. When adjustment completed, OSD display and PIF-VCO self-adjustment status data of EEPROM are updated.
7. VIF-DEF(1chip), intelligent monitor output and IM input mode are recovered.

## MTS-FILTER

**Adjustment is performed in the center of the range when FILTER status is OK.**

1. If data is changed from 0 to 63, point where NG → OK is A and point where OK → NG is B.
2. If data is changed from 63 to 0, point where NG → OK is C and point where OK → NG is D.
3. (A+B+C+D)/4 is the adjustment point.

## Setting Mode Items

Second Stage

| No. | Item Name | IC | Register | Range | Default |
|---|---|---|---|---|---|
| F01 | VideoTone-Gain (TV) | 1chip | V-TONE | 0 / 1 | 0 |
| F02 | VideoTone-Gain (AV) | 1chip | V-TONE | 0 / 1 | 0 |
| F03 | VideoTone-Gain(YUV) | 1chip | V-TONE | 0 / 1 | 0 |
| F04 | ABCL | 1chip | ABCL | 0 / 1 | 0 |
| F05 | BS | 1chip | BS-OFF | 0 / 1 | 0 |
| F06 | ABCL-G | 1chip | ABCL-G | 0 / 1 | 0 |
| F07 | SHP-AV | OFFSET | VIDEO-TONE(OFFSET) | -16~+16 | 0 |
| F08 | SHP-YUV | OFFSET | VIDEO-TONE(OFFSET) | -16~+16 | 0 |
| F09 | RGB-CLIP | 1chip | ExtRGB-Clip | 0 / 1 | 0 |
| F10 | E-SAVE | OFFSET | CONTRAST(OFFSET) | 0~63 | 30 |
| F11 | FAO-VOL | 1chip | A-ATT | 0~127 | 120 |
| F12 | PIF-G | 1chip | VIF-GAIN | 0~7 | 4 |
| F13 | Y-DELAY(TV) | 1chip | Y-Delay | 0~7 | 0 |
| F14 | Y-DELAY(AV) | 1chip | Y-Delay | 0~7 | 0 |
| F15 | Y-DELAY(YUV) | 1chip | Y-Delay | 0~7 | 0 |
| F16 | TINT-AV | OFFSET | TINT(OFFSET) | -32~+32 | 0 |
| F17 | COL-AV | OFFSET | COLOR(OFFSET) | -32~+32 | 0 |
| F18 | R-DRI(R2) | OFFSET | R-DRI(OFFSET) | -32~+32 | 0 |
| F19 | R-DRI(R) | OFFSET | R-DRI(OFFSET) | -32~+32 | 0 |
| F20 | R-DRI(B) | OFFSET | R-DRI(OFFSET) | -32 ~+32 | 0 |
| F21 | B-DRI(R2) | OFFSET | B-DRI(OFFSET) | -32~+32 | 0 |
| F22 | B-DRI(R) | OFFSET | B-DRI(OFFSET) | -32~+32 | 0 |
| F23 | B-DRI(B) | OFFSET | B-DRI(OFFSET) | -32~+32 | 0 |
| F24 | V-FREE | 1chip | V-FREE | 0 / 1 | 0 |
| F25 | GAMMA | 1chip | GAMMA | 0~3 | 0 |
| F26 | TRAP(TV) | 1chip | TRAP-FINE | 0~3 | 2 |
| F27 | TRAP(AV) | 1chip | TRAP-FINE | 0~3 | 2 |
| F28 | H-FREE | 1chip | H-FREE | 0 / 1 | 0 |
| F29 | 1W(TV) | 1chip | V.Window | 0 / 1 | 0 |
| F30 | 1W(AV) | 1chip | V.Window | 0 / 1 | 0 |
| F31 | YLPF | 1chip | YSW-LPF | 0 / 1 | 1 |
| F32 | BS-D | 1chip | BS-DISCHARGE | 0~3 | 0 |
| F33 | BS-C | 1chip | BS-CHARGE | 0~3 | 0 |
| F34 | SL(TV) | 1chip | S-SLICE DOWN | 0~3 | 0 |
| F35 | SL(AV) | 1chip | S-SLICE DOWN | 0~3 | 0 |
| F36 | SL(YUV) | 1chip | S-SLICE DOWN | 0~3 | 0 |
| F37 | AFC2 | 1chip | AFC2-G | 0 / 1 | 0 |
| F38 | VD(TV) | 1chip | Vsync-Det | 0 / 1 | 0 |
| F39 | VD(AV) | 1chip | Vsync-Det | 0 / 1 | 0 |
| F40 | AS(TV) | 1chip | Auto-Slice | 0 / 1 | 0 |
| F41 | AS(AV) | 1chip | Auto-Slice | 0 / 1 | 0 |
| F42 | AS(YUV) | 1chip | Auto-Slice | 0 / 1 | 0 |
| F43 | FBP(TV) | 1chip | FBP Vth | 0 / 1 | 0 |
| F44 | FBP(AV) | 1chip | FBP Vth | 0 / 1 | 0 |
| F45 | FBP(YUV) | 1chip | FBP Vth | 0 / 1 | 0 |
| F46 | C.Clip Level | 1chip | C.Clip Level | 0 / 1 | 0 |
| F47 | PSW | MTS | PSW | 0 / 1 | 0 |
| F48 | FAO-VOL | MTS | VOL | 0~63 | 60 |
| F49 | CP | PLL | CP | 0 / 1 | 0 |
| F50 | CC LEVEL | MICRON | | | 0 |
| F51 | OSD POS | MICRON | | | 0 |
| F52 | OFFSET-ADJ-COL | 1 chip | COLOR | -32~32 | 0 |
| F53 | OFFSET-ADJ-TINT | 1 chip | TINT | -32~32 | 0 |
| F54 | OFFSET-ADJ-TINT-YUV | 1 chip | BASEBAND-TINT | -32~32 | 0 |

## Option Mode Items

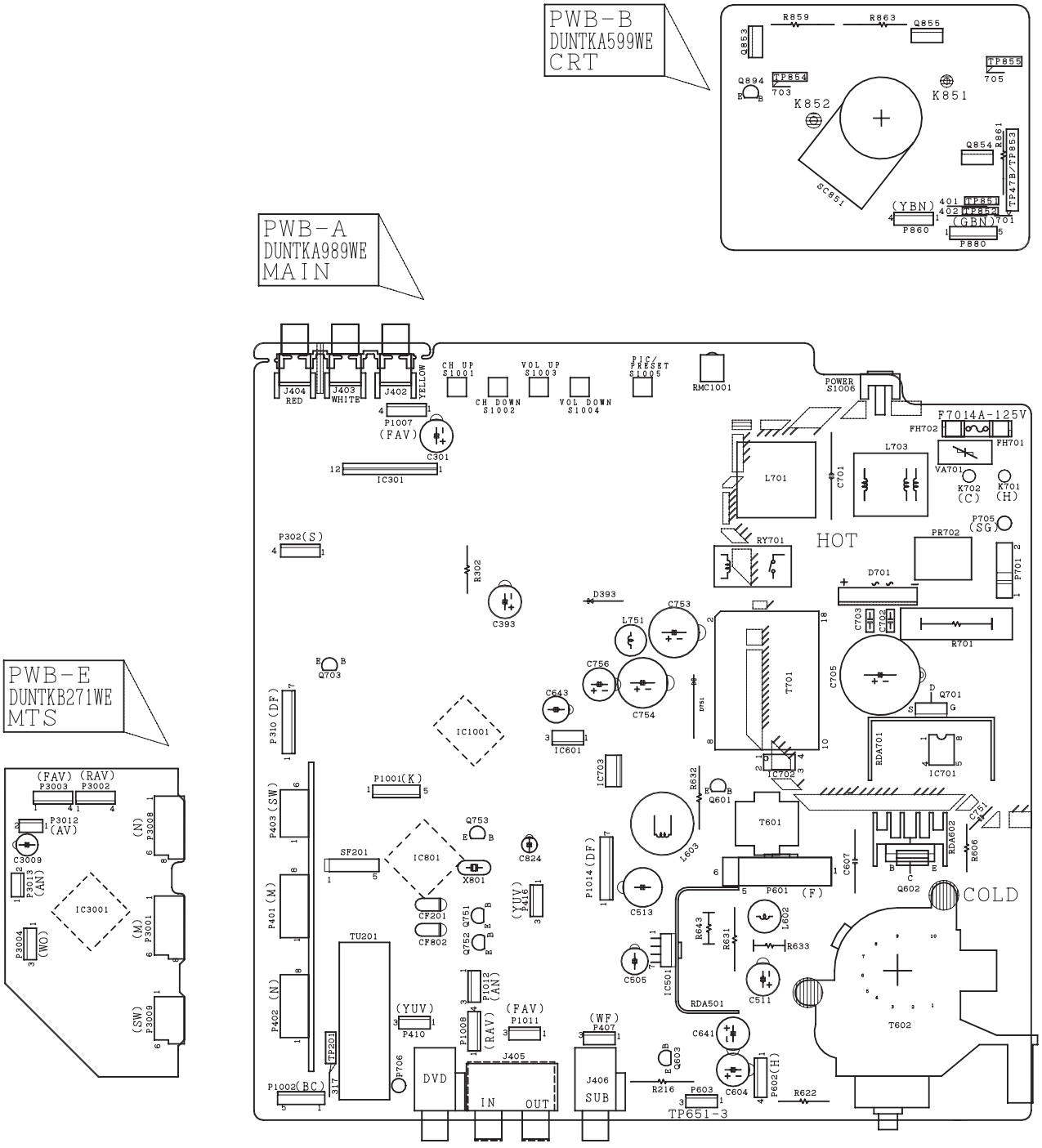
Third Stage

| No | ITEM | 0 | 1 | DEFAULT |
|---|---|---|---|---|
| O01 | DEM0 | Without DEMO | With DEMO | 1 |
| O02 | DOWNLOAD | Without V-CHIP OP | With V-CHIP OP | 1 |
| O03 | V-CHIP | Without V-CHIP | With V-CHIP | 1 |
| O04 | SPEAKER | Without SPEAKER | With SPEAKER | 1 |
| O05 | FAO | Without FAO | With FAO | 1 |
| O06 | P.PREF | Without P.PREF | With P.PREF | 1 |
| O07 | UNIV+ | Without UNIV+ | With INIV+ | 1 |
| O08 | VIEW TIMER | Without VIEW TIMER | With VIEW TIMER | 1 |
| O09 | EZ-SETUP | EZ-SETUP | AUTO PRESET | 1 |
| O10 | PON-CH | Without POWER-ON | With POWER-ON | 1 |
| O11 | FAV-COL | FAV-COL | COL-TEMP | 1 |
| O12 | COMPONENT | Without COMPONENT | With COMPONENT | 1 |
| O13 | AV | Without AV | With AV | 1 |
| O14 | AV2 | AV1 system | AV2 system | 1 |
| O15 | MTS | Without MTS | With MTS | 1 |
| O16 | TONE-CTRL | Without S-ADJ | With S-ADJ | 1 |
| O17 | AUTO-OFF | Without AUTO-OFF | With AUTO-OFF | 1 |
| O18 | INIT-LANG | ENGLISH | SPANISH | 1 |
| O19 | SETUP-FLAG | NO SETUP | AUTO SETUP | 1 |
| O20 | FR.AV (Front, Rear AV) | 3: Display "FRONT A/V INPUTS" and "REAR A/V INPUTS" in DEMO mode.<br>2: Display "FRONT A/V INPUTS" only in DEMO mode.<br>1: Display "REAR A/V INPUTS" only in DEMO mode.<br>0: No display of above lines in DEMO mode. | | 3 |

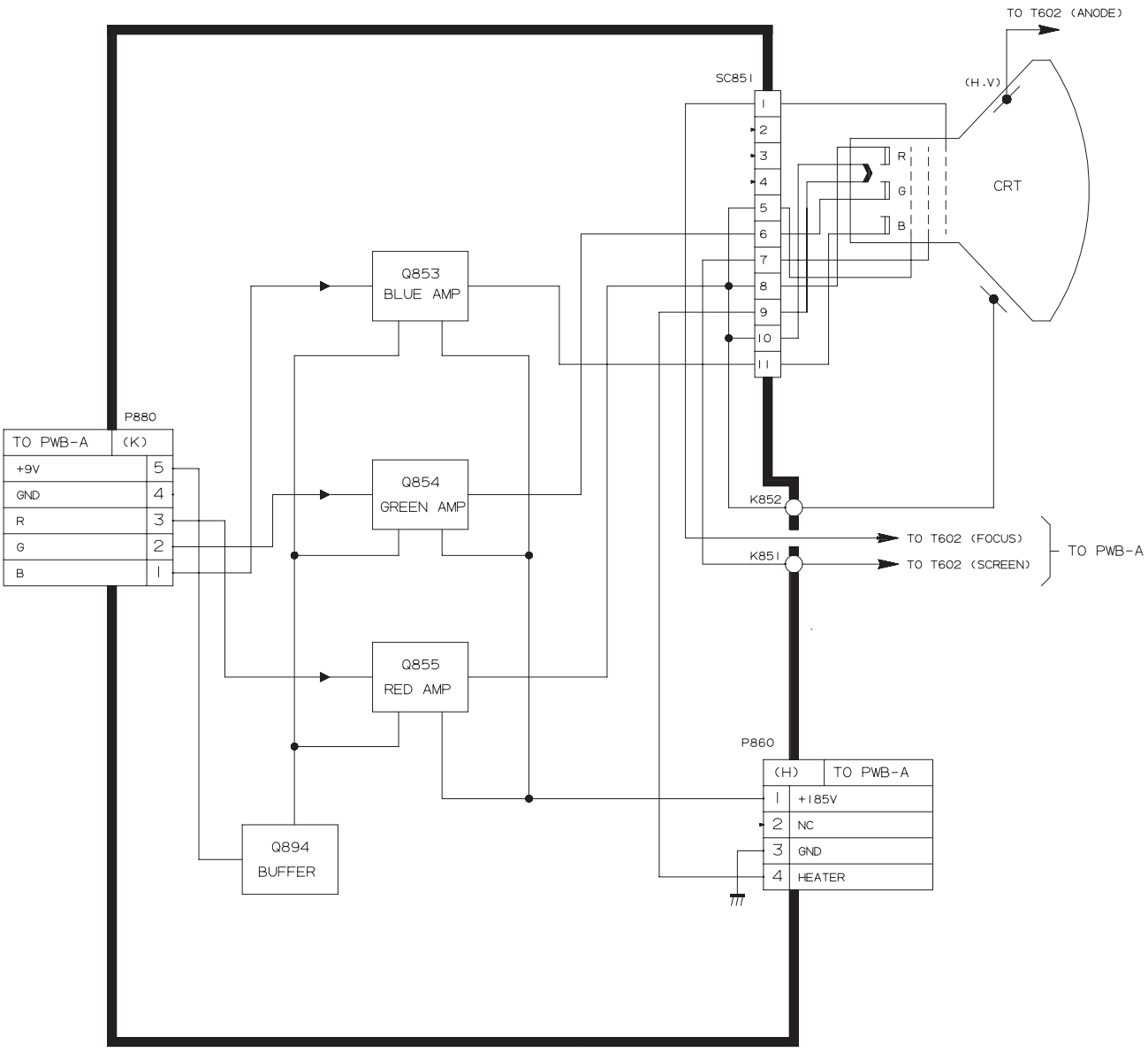
## Check Mode

Micron mask version, software version and ROM correction function status are displayed in check mode.

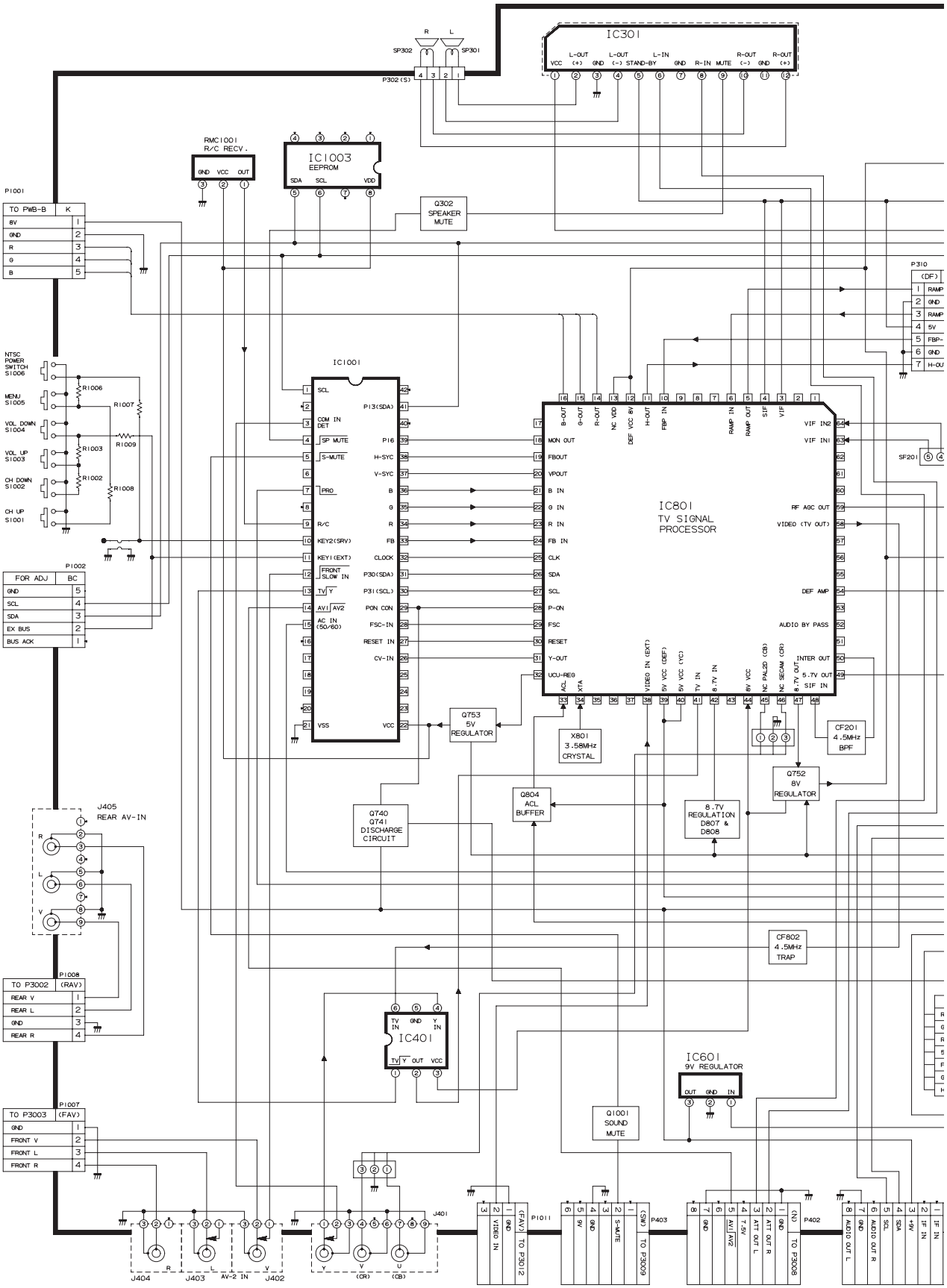
# MODEL 20F540 CHASSIS LAYOUT

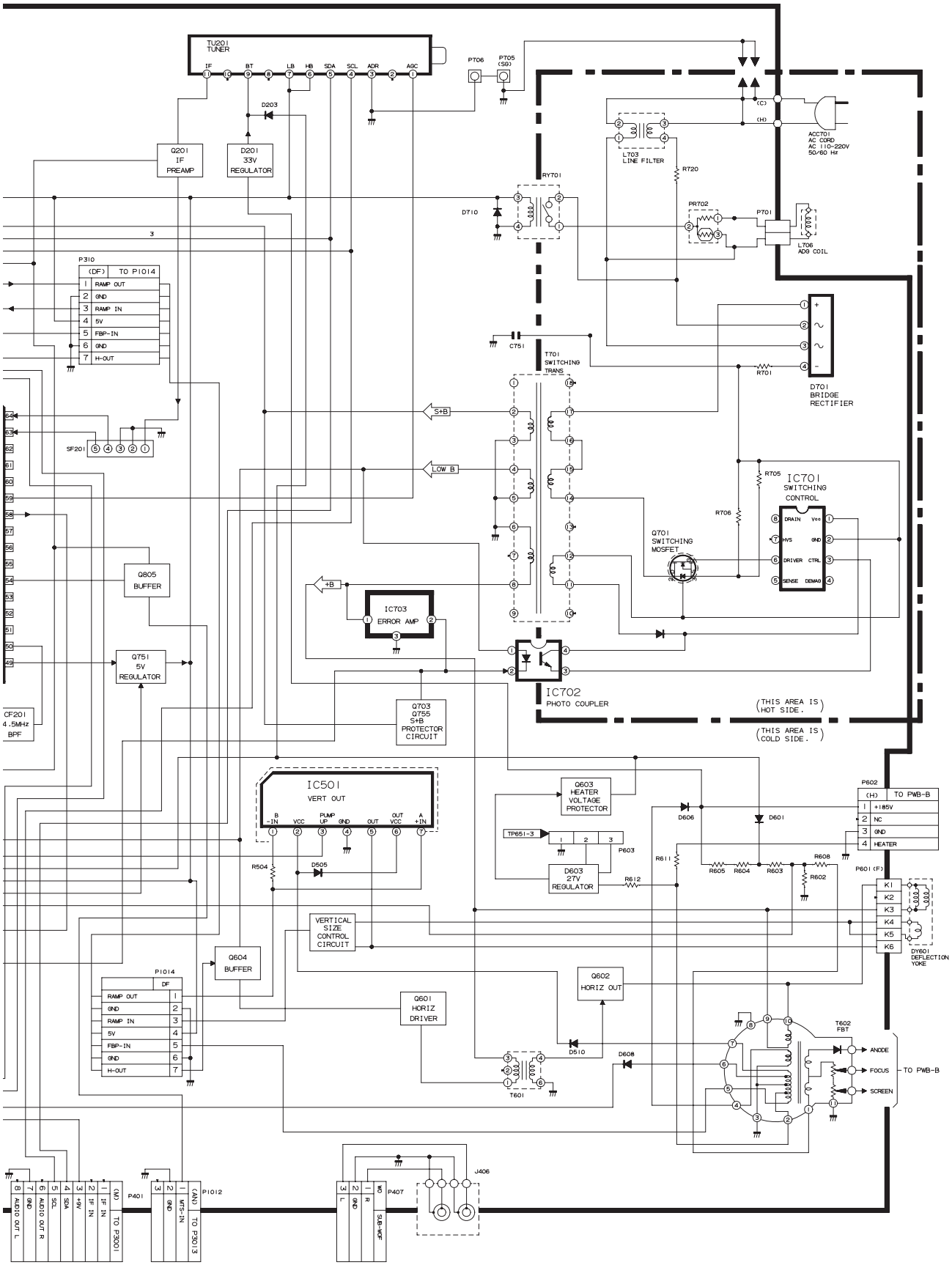


# MODEL 20F540 BLOCK DIAGRAM: CRT Unit

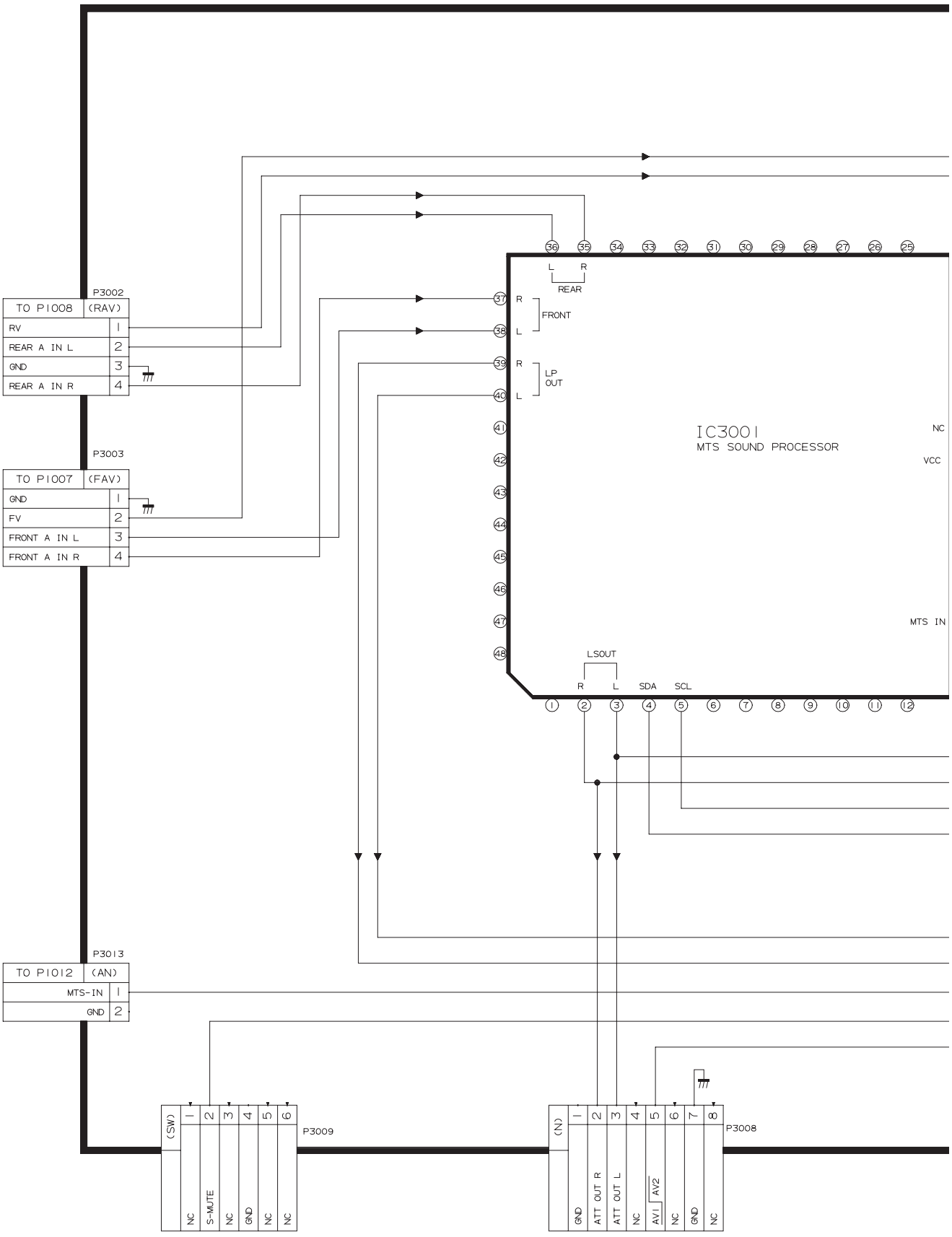


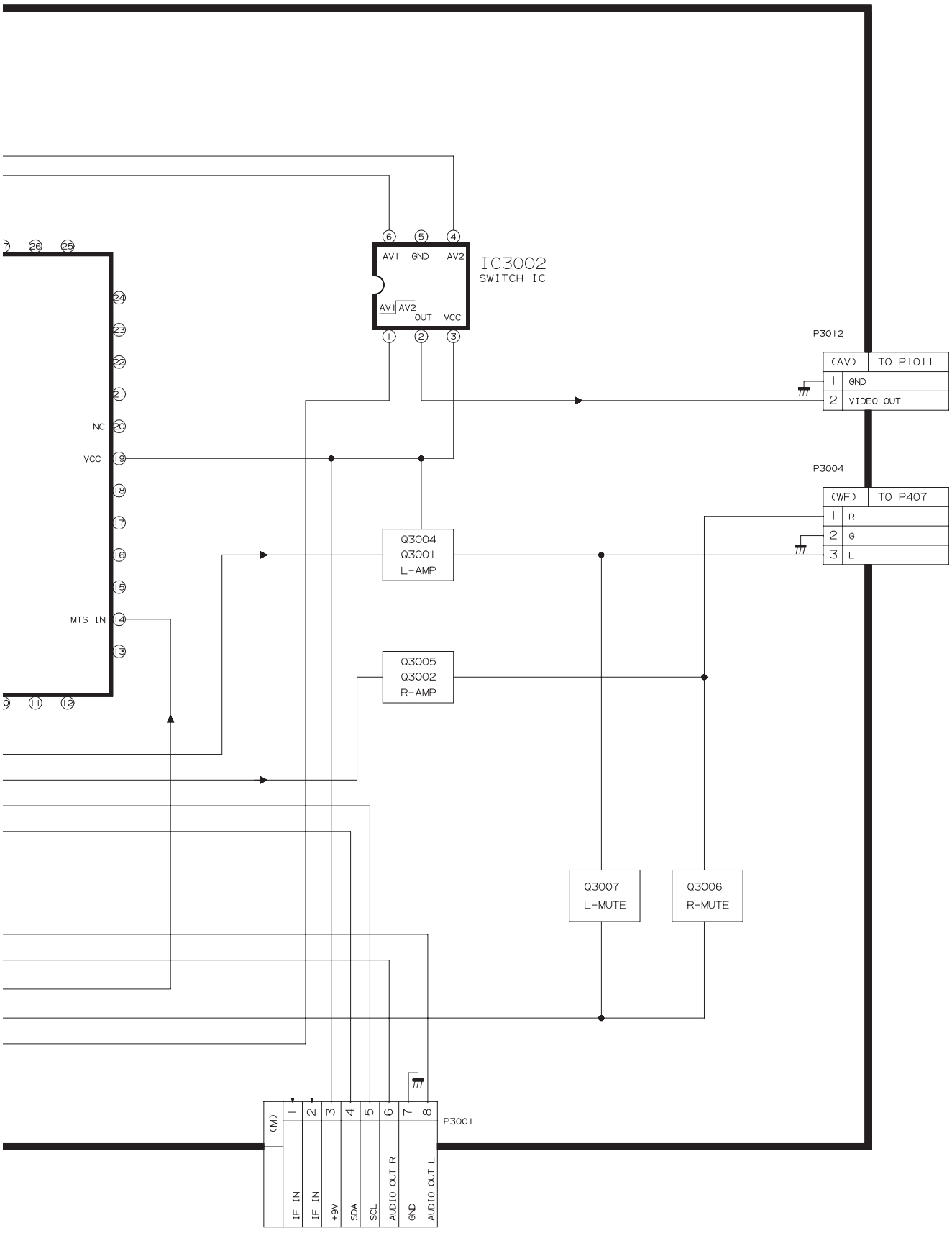
# MODEL 20F540 BLOCK DIAGRAM: MAIN Unit




TU201 TUNER
IF BT LB HB SDA SCL ADR AGC
P706
P705 (SG)
D203
Q201 IF PREAMP
D201 33V REGULATOR
RY701
D710
L703 LINE FILTER
R720
ACC701 AC CORD AC 110-220V 50/60 Hz
PR702
P701
L706 ADJ COIL
P310
(DF) TO P1014
1 RAMP OUT
2 GND
3 RAMP IN
4 5V
5 FBP-IN
6 GND
7 H-OUT
C751
T701 SWITCHING TRANS
R701
D701 BRIDGE RECTIFIER
S+B
LOW B
SF201
R705
IC701 SWITCHING CONTROL
R706
Q701 SWITCHING MOSFET
DRAIN Vcc
HVS GND
DRIVER CTRL
SENSE DEMAG
Q805 BUFFER
+B
IC703 ERROR AMP
Q751 5V REGULATOR
IC702 PHOTO COUPLER
(THIS AREA IS HOT SIDE.)
(THIS AREA IS COLD SIDE.)
CF201 4.5MHz BPF
Q703 Q755 S+B PROTECTOR CIRCUIT
IC501 VERT OUT
B -IN VCC PUMP UP GND OUT OUT VCC A +IN
Q603 HEATER VOLTAGE PROTECTOR
TP651-3
P603
D603 27V REGULATOR
R612
D606
D601
P602
(H) TO PWB-B
1 +185V
2 NC
3 GND
4 HEATER
P601 (F)
R611
R605 R604 R603
R608
R602
R504
D505
K1 K2 K3 K4 K5 K6
DY601 DEFLECTION YOKE
VERTICAL SIZE CONTROL CIRCUIT
Q604 BUFFER
P1014
DF
RAMP OUT 1
GND 2
RAMP IN 3
5V 4
FBP-IN 5
GND 6
H-OUT 7
Q601 HORIZ DRIVER
Q602 HORIZ OUT
D510
D608
T601
T602 FBT
ANODE
FOCUS
SCREEN
TO PWB-B
P401
AUDIO OUT L
GND
AUDIO OUT R
SCL
SDA
+5V
IF IN
IF IN
(M) TO P3001
P1012
GND
MTS-IN
(AN) TO P3013
P407
J406
L
GND
R
MO
SUB-WOF

# MODEL 20F540 BLOCK DIAGRAM: MTS MODULE Unit




IC3002
SWITCH IC
AV1 GND AV2
AV1 AV2
OUT VCC
NC
VCC
MTS IN
P3012
(AV) TO P1011
1 GND
2 VIDEO OUT
P3004
(WF) TO P407
1 R
2 G
3 L
Q3004
Q3001
L-AMP
Q3005
Q3002
R-AMP
Q3007
L-MUTE
Q3006
R-MUTE
P3001
(M)
1 IF IN
2 IF IN
3 +9V
4 SDA
5 SCL
6 AUDIO OUT R
7 GND
8 AUDIO OUT L

# DESCRIPTION OF SCHEMATIC DIAGRAM

***NOTES:***

1. *The unit of resistance "ohm" is omitted. (K=kΩ=1000Ω, M=MΩ)*
2. *All resistors are 1/16 watt, unless otherwise noted.*
3. *All capacitors are μ F, unless otherwise noted. (P=pF=μμF)*
4. *(G) indicates ±2% tolerance may be used.*
5. ⏚ *indicates line isolated ground.*

***VOLTAGE MEASUREMENT CONDITIONS:***

1. *All DC voltages are measured with DVM connected between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltages measured with 1000μ V B & W or Color signal.*

***WAVEFORM MEASUREMENT CONDITIONS:***

1. *Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. ⟳ *indicates waveform check points (See chart, waveforms are measured from point indicated to chassis ground.)*

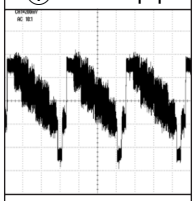
⚠ *AND SHADED ( ) COMPONENTS = SAFETY RELATED PARTS.*
▲ *MARK= X-RAY RELATED PARTS.*

*DRGANNES MARQUES ⚠ ET HACHRES ( ): PIECES RELATIVES A LA SECURITE.*
*MARQUE ▲ : PIECS RELATIVE AUX RAYONS X.*

*This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.*

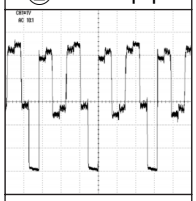
# WAVEFORMS

① 1.024 Vp-p



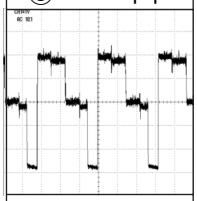
Horiz.Rate

② 5.69 Vp-p



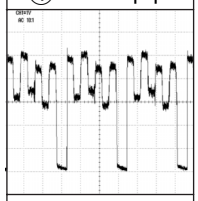
Horiz.Rate

③ 5.69 Vp-p



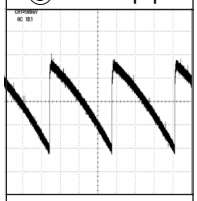
Horiz.Rate

④ 5.84 Vp-p



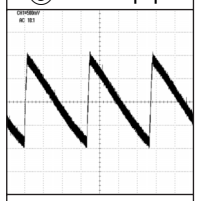
Horiz.Rate

⑤ 2.00 Vp-p



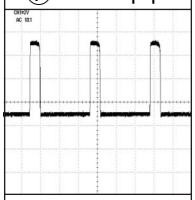
Vert.Rate

⑥ 2.08 Vp-p



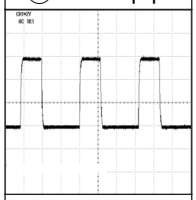
Vert.Rate

⑦ 6.56 Vp-p



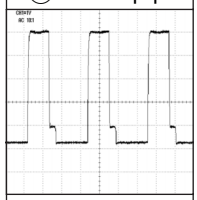
Horiz.Rate

⑧ 6.40 Vp-p



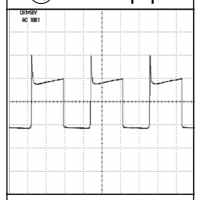
Horiz.Rate

⑨ 4.88 Vp-p



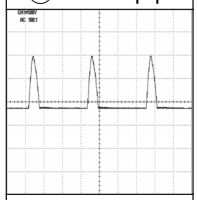
Horiz.Rate

⑩ 158 Vp-p



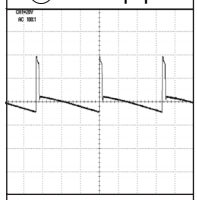
Horiz.Rate

⑪ 1140 Vp-p



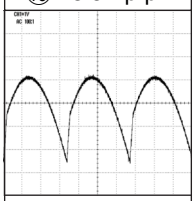
Horiz.Rate

⑫ 48 Vp-p



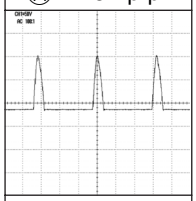
Vert.Rate

⑬ 3.8 Vp-p



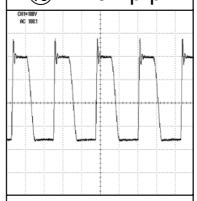
Vert.Rate

⑭ 118 Vp-p



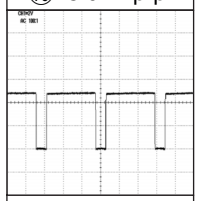
Horiz.Rate

⑮ 440 Vp-p



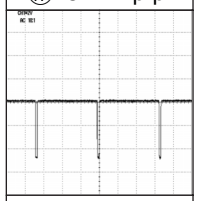
Horiz.Rate

⑯ 5.04 Vp-p



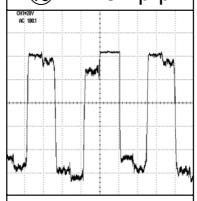
Horiz.Rate

⑰ 5.12 Vp-p



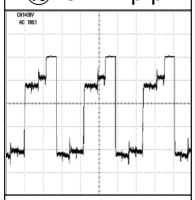
Vert.Rate

⑱ 112.8 Vp-p



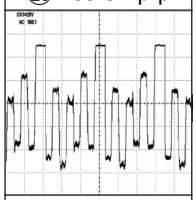
Horiz.Rate

⑲ 94.4 Vp-p



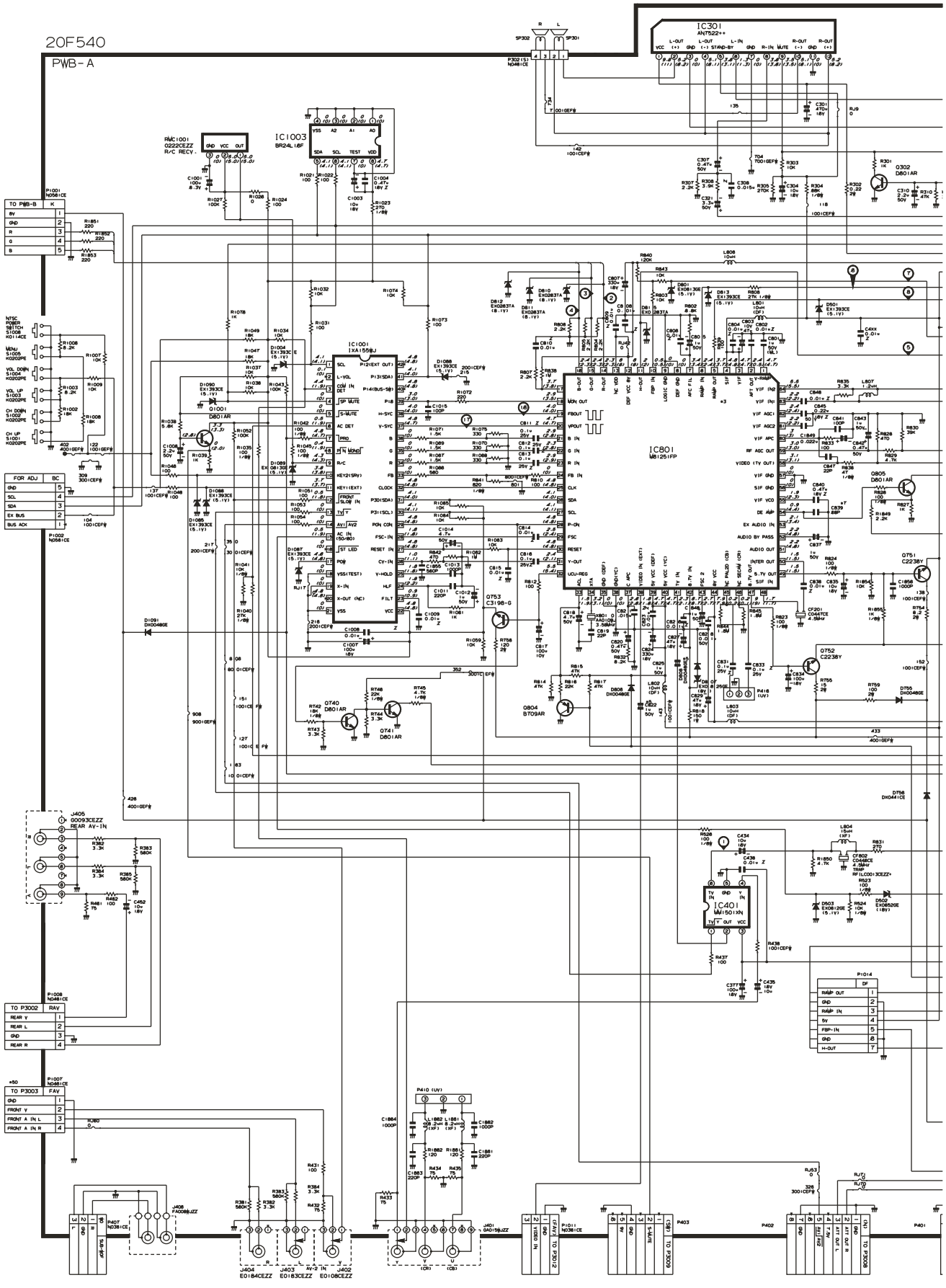
Horiz.Rate

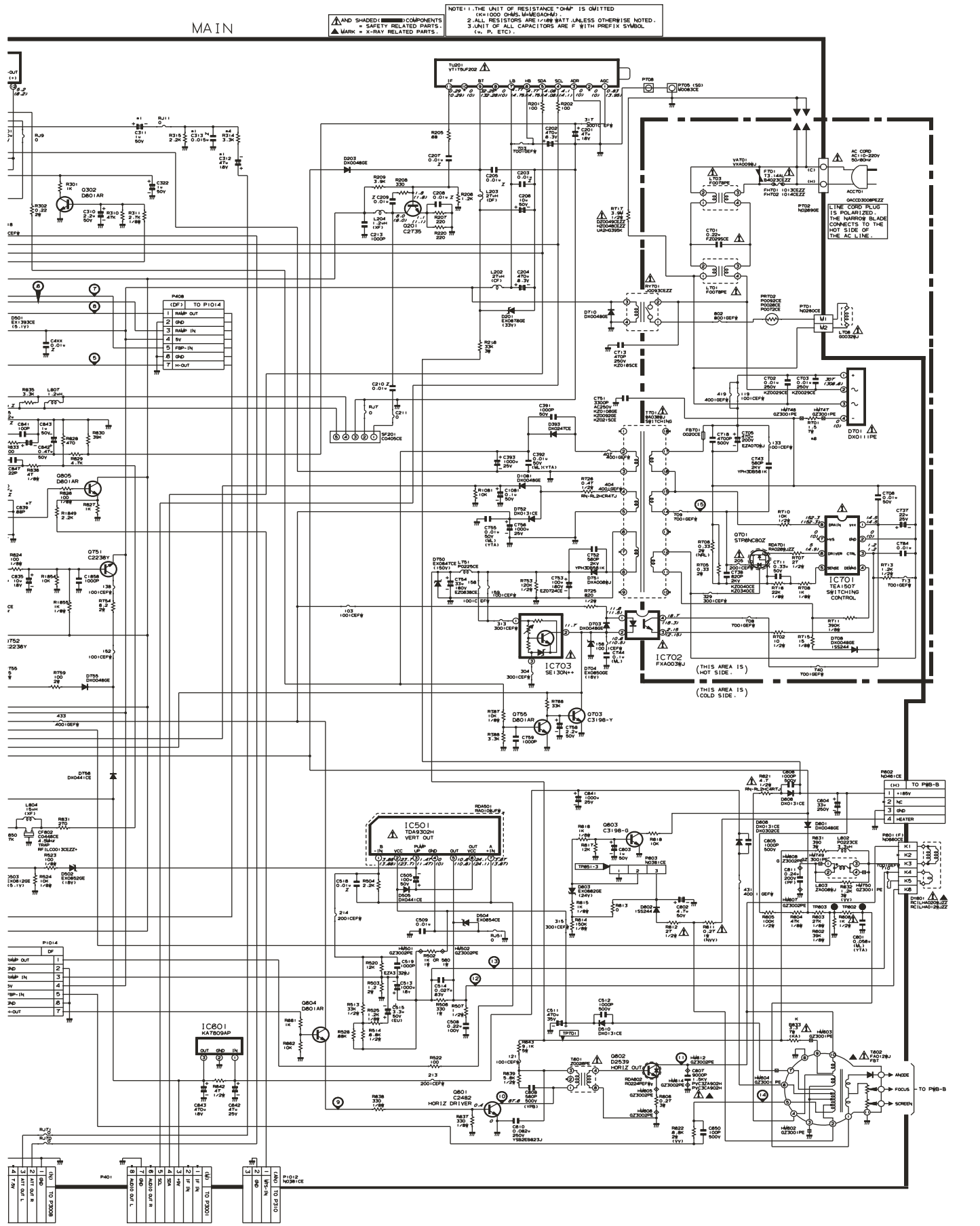
⑳ 109.6 Vp-p



Horiz.Rate

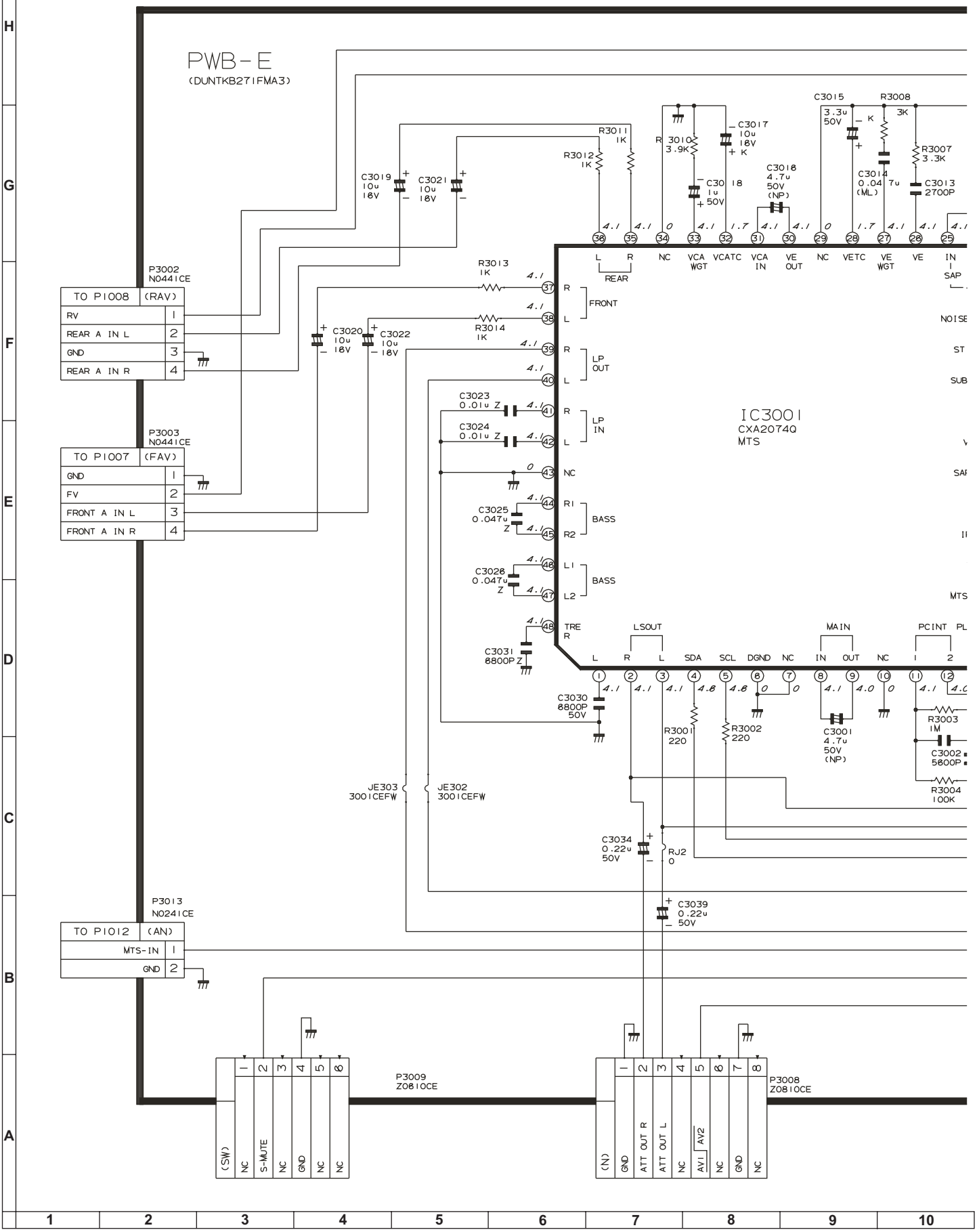
# SCHEMATIC DIAGRAM: MAIN-1 Unit

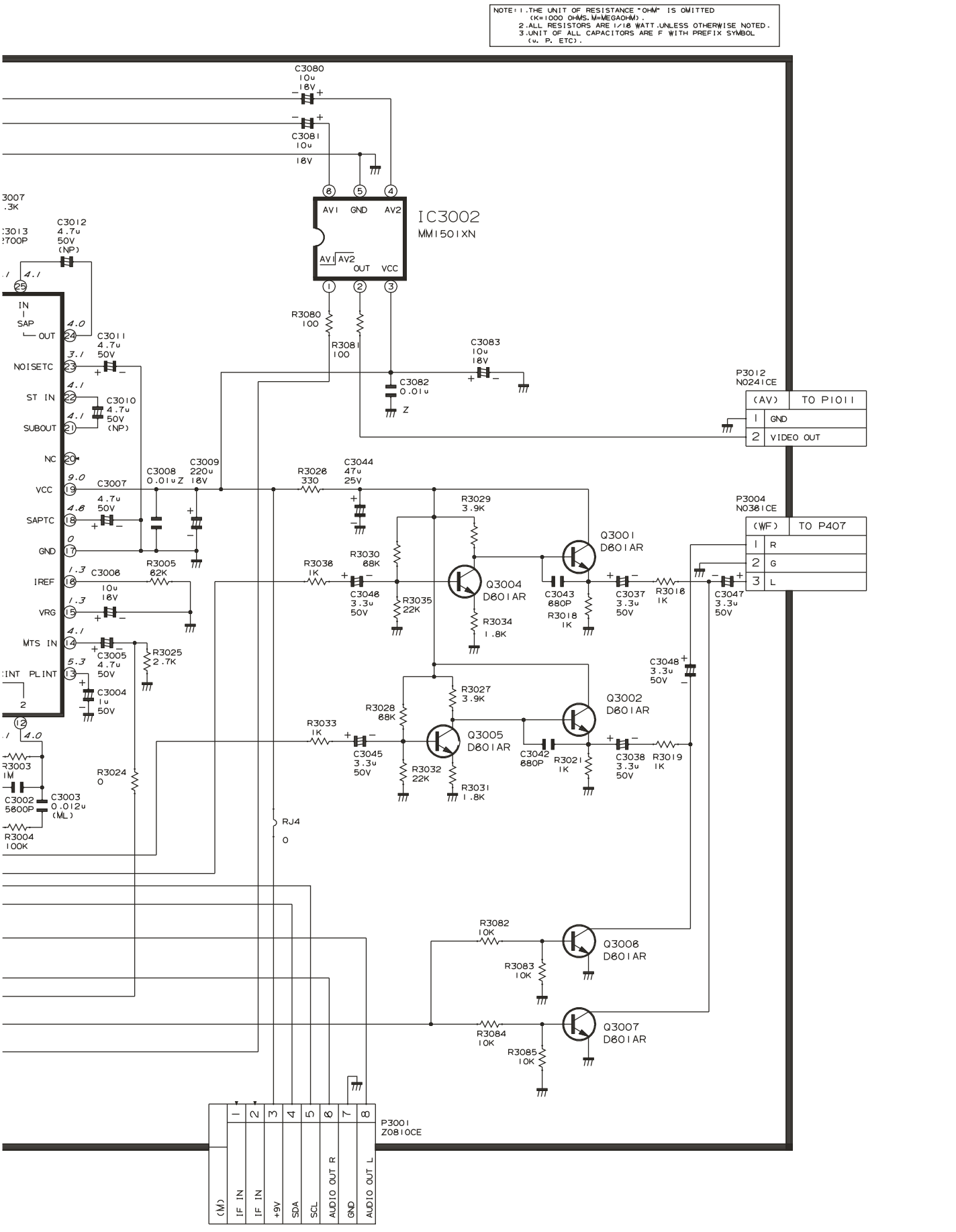



MAIN
NOTE: 1. THE UNIT OF RESISTANCE "OHM" IS OMITTED (K=1000 OHMS, M=MEGAOHM)
2. ALL RESISTORS ARE 1/4W WATT UNLESS OTHERWISE NOTED.
3. UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL (u, P, ETC).
AND SHADED( ) COMPONENTS = SAFETY RELATED PARTS.
MARK = X-RAY RELATED PARTS.
IC701 TEA1507 SWITCHING CONTROL
IC702 FXA003NJ
IC703 SE130N++
IC501 TDA9302H VERT OUT
IC601 KA7809AP
Q701 C2236Y
Q702 D802AR
Q703 C3198-Y
Q801 C2482 HORIZ DRIVER
Q802 D2539 HORIZ OUT
Q803 C3198-G
Q804 D802AR
Q805 D802AR
Q0201 C2735
(THIS AREA IS HOT SIDE.)
(THIS AREA IS COLD SIDE.)
LINE CORD PLUG IS POLARIZED. THE NARROW BLADE CONNECTS TO THE HOT SIDE OF THE AC LINE.
P408 (DF) TO PI014
PI014
P401
P5008
P5001
P5010
PI012

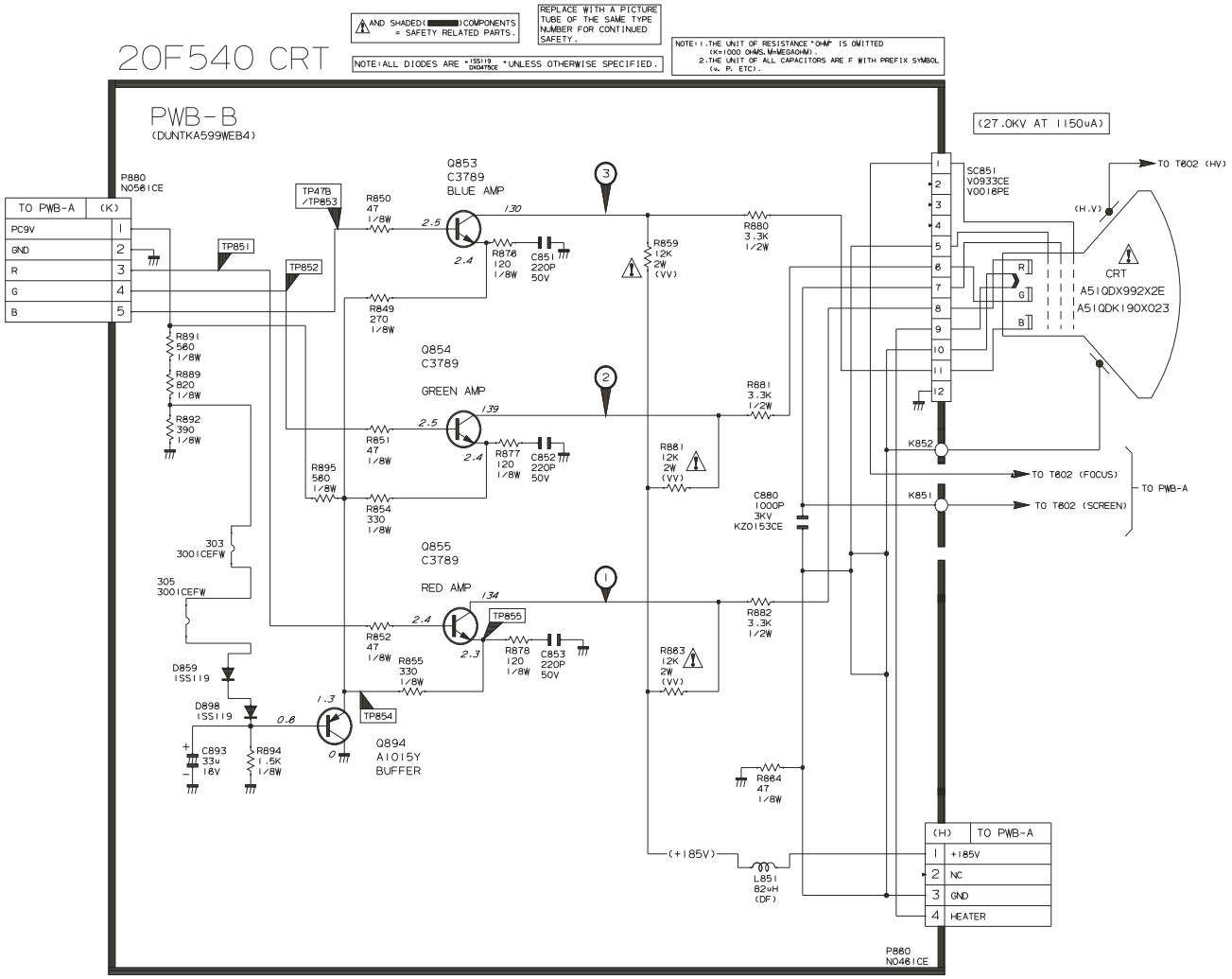
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|

# SCHEMATIC DIAGRAM: MTS MODULE

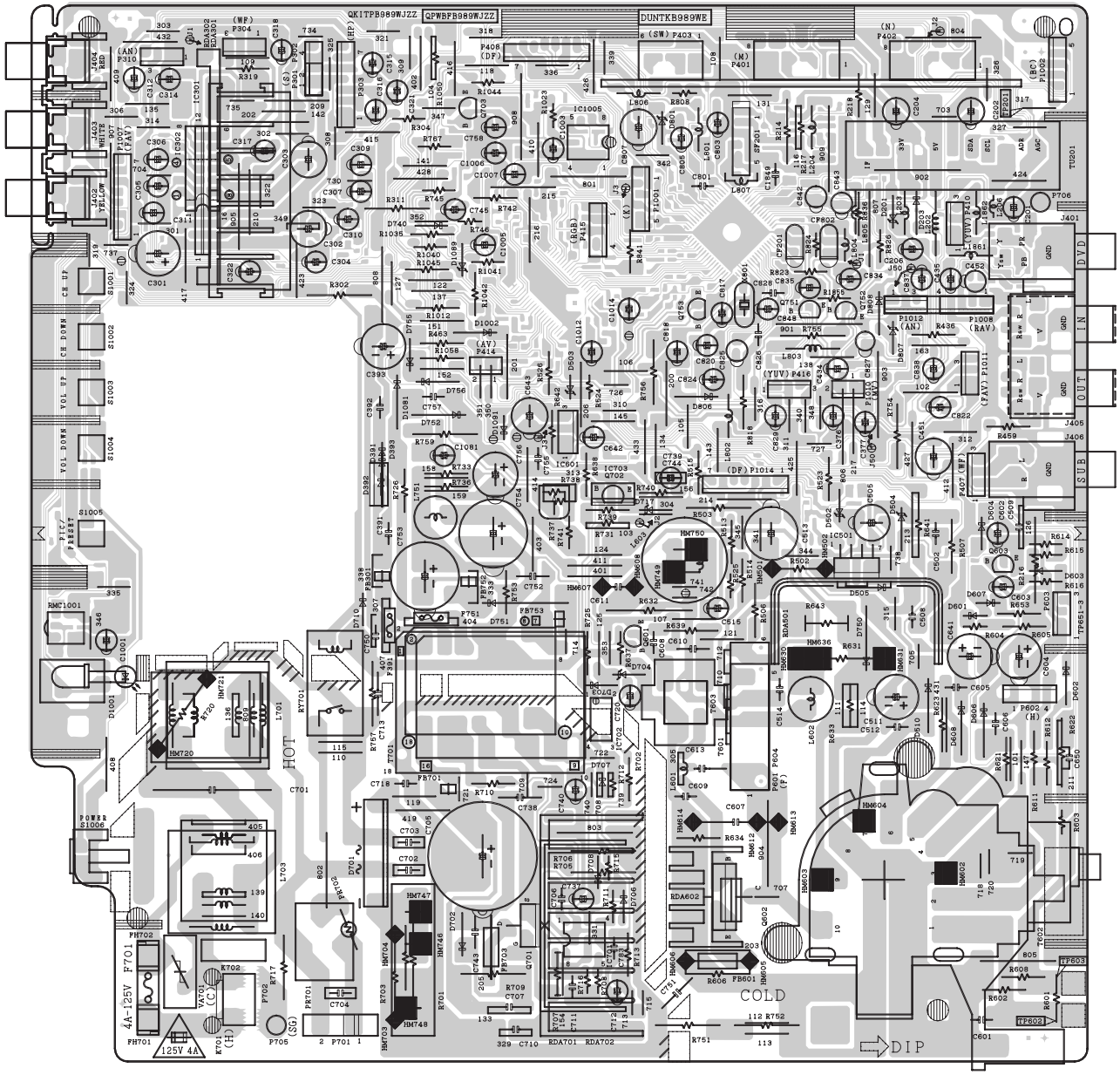



NOTE: 1.THE UNIT OF RESISTANCE "OHM" IS OMITTED (K=1000 OHMS, M=MEGAOHM).
2.ALL RESISTORS ARE 1/10 WATT.UNLESS OTHERWISE NOTED.
3.UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL (u, P, ETC).
IC3002
MM1501XN
AV1 GND AV2
AV1 AV2 OUT VCC
C3080 10u 16V
C3081 10u 16V
C3082 0.01u Z
C3083 10u 16V
R3080 100
R3081 100
C3012 4.7u 50V (NP)
C3011 4.7u 50V
C3010 4.7u 50V (NP)
C3007 4.7u 50V
C3008 0.01uZ
C3009 220u 16V
C3005 4.7u 50V
C3004 1u 50V
C3002 5600P
C3003 0.012u (ML)
R3004 100K
R3003 1M
R3005 62K
R3024 0
R3025 2.7K
R3026 330
C3044 47u 25V
R3029 3.9K
R3030 68K
R3035 22K
R3034 1.8K
R3038 1K
C3048 3.3u 50V
Q3004 D601AR
Q3001 D601AR
C3043 680P
R3018 1K
C3037 3.3u 50V
R3016 1K
C3047 3.3u 50V
R3027 3.9K
R3028 68K
R3032 22K
R3031 1.8K
R3033 1K
C3045 3.3u 50V
Q3005 D601AR
Q3002 D601AR
C3042 680P
R3021 1K
C3038 3.3u 50V
R3019 1K
C3048 3.3u 50V
RJ4 0
R3082 10K
R3083 10K
Q3006 D601AR
R3084 10K
R3085 10K
Q3007 D601AR
P3012 N0241CE
(AV) TO P1011
1 GND
2 VIDEO OUT
P3004 N0381CE
(WF) TO P407
1 R
2 G
3 L
P3001 Z0810CE
1 (M)
2 IF IN
3 IF IN
4 +9V
5 SDA
6 SCL
7 AUDIO OUT R
8 GND
AUDIO OUT L
IN
SAP
OUT
NOISETC
ST IN
SUBOUT
NC
VCC
SAPTC
GND
IREF
VRG
MTS IN
PLINT

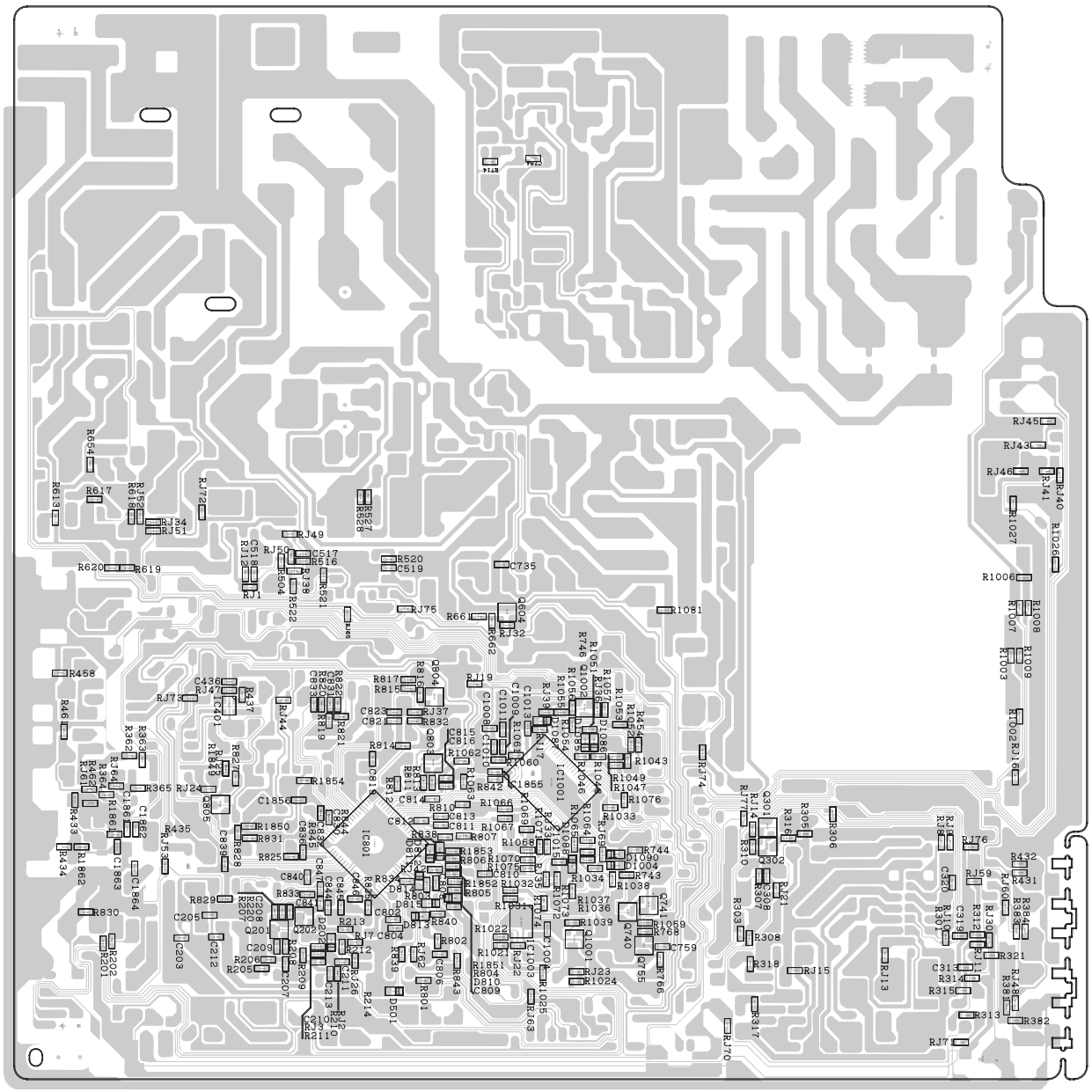
# SCHEMATIC DIAGRAM: CRT Unit



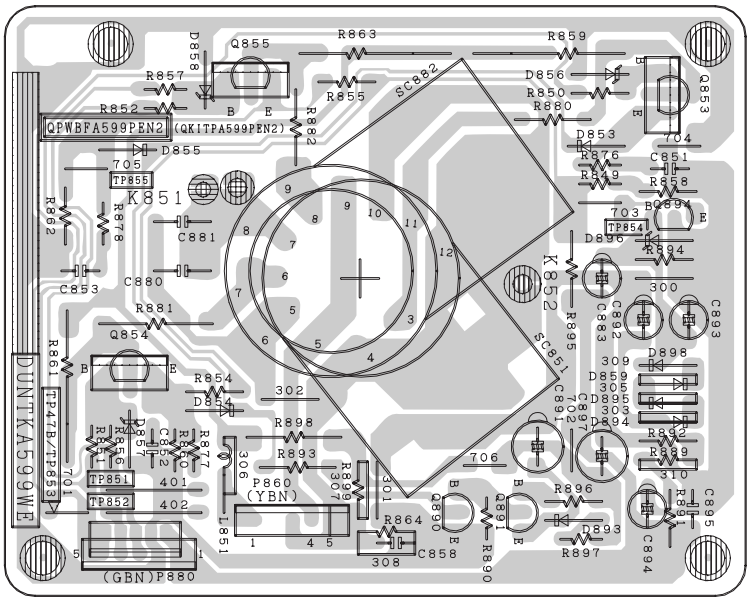
# PRINTED WIRING BOARD ASSEMBLIES



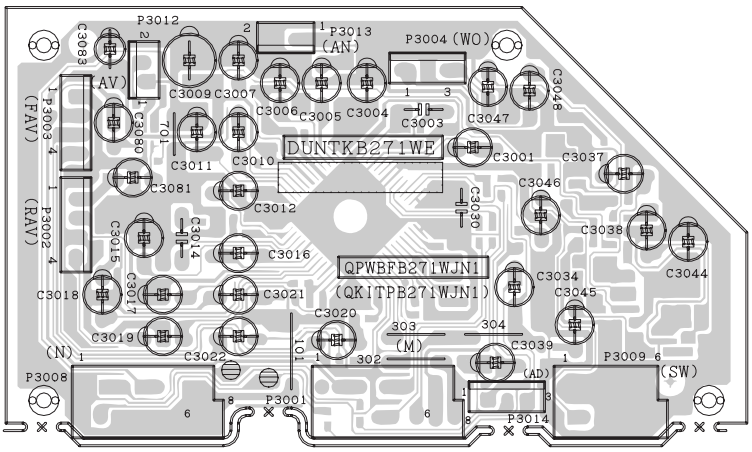

**PWB-A: MAIN Unit (Wiring Side)**



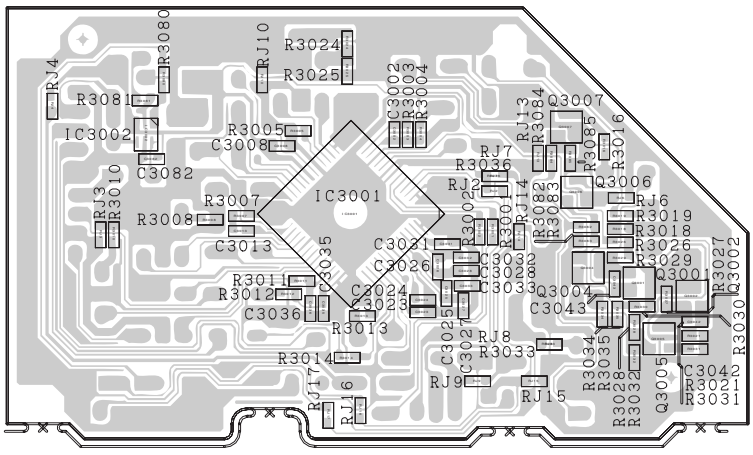
**PWB-A: MAIN Unit (Chip Parts Side)**




**PWB-B: CRT Unit (Wiring Side)**




**PWB-E: MTS MODULE Unit (Wiring Side)**




**PWB-E: MTS MODULE Unit (Chip Parts Side)**

# PARTS LIST

## PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual; electrical components having such features are identified by ⚠ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which dose no have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

### "HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

in **USA**: Contact your nearest SHARP Parts Distributor to order. For location of SHARP Parts Distributor, Please call Toll-Free; 1-800-BE-SHARP

« MARK: SPARE PARTS-DELIVERY SECTION

p **MARK: X-RAY RELATED PARTS**

| Ref. No. | Part No. | ★ | Description | Code |
|---|---|---|---|---|

## PICTURE TUBE

| | | | | |
|---|---|---|---|---|
| | VB51QDK190X1E | X | Picture Tube | BW |
| L706 | RCILGA032WJZZ | X | Degaussing Coil | AK |
| | QEARCA012WJZZ | X | Grounding Strap | AC |

## PRINTED WIRING BOARD ASSEMBLIES

## (NOT REPLACEMENT ITEM)

| | | | | |
|---|---|---|---|---|
| PWB-A | DUNTKB989WEA0 | – | MAIN Unit | – |
| PWB-B | DUNTKA599WEB4 | – | CRT Unit | – |
| PWB-E | DUNTKB271WEA3 | – | MTS MODULE Unit | – |

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|

## PWB-A: DUNTKB989WEA0

## MAIN UNIT

### TUNER

***NOTE:THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDETLY***

| | | | | | | |
|---|---|---|---|---|---|---|
| ⚠ | TU201 | VTUVT1T5UF202 | X | Tuner | | AP |
| | | **INTEGRATED CIRCUITS** | | | | |
| | IC301 | VHIAN7522++-1 | X | AN7522++ | | AF |
| | IC401 | VHIMM1501XN-1Y | X | MM1501XN | | AC |
| ⚠ | IC501 | VHITDA9302H-1 | X | TDA9302H | | AE |
| | IC601 | VHIKA7809AP-1 | X | KA7809AP | | AC |
| ⚠ | IC701 | VHITEA1507/-1 | X | TEA1507 | | AE |
| ⚠ | IC702 | RH-FXA003WJZZ | X | PC123Y82 | | AB |
| ⚠ | IC703 | VHISE130N++-F | X | SE130N | | AD |
| | IC801 | VHIM61251AF1EQ | X | M61251AFP | | AN |
| | IC1001 | RH-IXA155WJN4 | X | IXA155WJ | | AP |
| | IC1003 | VHIBR24L16F-1Y | X | BR24L16F | | AC |
| | | **TRANSISTORS** | | | | |
| | Q201 | VS2SC2735//1EY | X | 2SC2735 | | AB |
| | Q302 | VS2SD601AR/-1Y | X | 2SD601AR | | AB |
| | Q601 | VS2SC2482//-1+ | X | 2SC2482 | | AB |
| | Q602 | VS2SD2539//1E | X | 2SD2539 | | AG |
| | Q603 | VS2SC3198-G-1+ | X | 2SC3198-G | | AB |
| | Q604 | VS2SD601AR/-1Y | X | 2SD601AR | | AB |
| ⚠ | Q701 | VSSTP6NC80Z1E | X | STP6NC80Z | | AF |
| | Q703 | VS2SC3198-Y-1+ | X | 2SC3198-Y | | AB |
| | Q740 | VS2SD601AR/-1Y | X | 2SD601AR | | AB |
| | Q741 | VS2SD601AR/-1Y | X | 2SD601AR | | AB |
| | Q751 | VS2SC2236Y/-1+ | X | 2SC2236Y | | AB |
| | Q752 | VS2SC2236Y/-1+ | X | 2SC2236Y | | AB |
| | Q753 | VS2SC3198-G-1+ | X | 2SC3198-G | | AB |
| | Q755 | VS2SD601AR/-1Y | X | 2SD601AR | | AB |
| | Q804 | VS2SB709AR/-1Y | X | 2SB709AR | | AB |
| | Q805 | VS2SD601AR/-1Y | X | 2SD601AR | | AB |
| | Q1001 | VS2SD601AR/-1Y | X | 2SD601AR | | AB |
| | | **DIODES** | | | | |
| | D201 | RH-EX0676GEZZY | X | Zener | Diode 32V | AB |
| | D203 | RH-DX0048GEZZY | X | DX0048GE | | AB |
| | D393 | RH-DX0247CEZZY | X | DX0247CE | | AB |
| | D501 | RH-EX1393CEZZY | X | EX1393CE | | AB |
| | D502 | RH-EX0652GEZZY | X | EX0652GE | | AB |
| | D503 | RH-EX0612GEZZY | X | EX0612GE | | AB |
| | D504 | RH-EX0654CEZZY | X | EX0654CE | | AC |
| | D505 | RH-DX0441CEZZY | X | Diode | | AB |
| | D510 | RH-DX0131CEZZY | X | Diode | | AB |
| | D601 | RH-DX0048GEZZY | X | DX0048GE | | AB |
| | D602 | VHD1SS244//-1Y | X | Diode | | AB |
| | D603 | RH-EX0662GEZZY | X | EX0662GE | | AB |
| | D606 | RH-DX0131CEZZY | X | Diode | | AB |
| | D608 | RH-DX0131CEZZY | X | Diode | | AB |
| ⚠ | D701 | RH-DX0111PEZZ | X | Zener | Diode | AC |
| | D703 | RH-DX0048GEZZY | X | DX0048GE | | AB |
| | D704 | RH-EX0650GEZZY | X | Zener | Diode 16V | AB |
| | D708 | RH-DX0048GEZZY | X | DX0048GE | | AB |
| | D710 | RH-DX0048GEZZY | X | DX0048GE | | AB |
| | D750 | RH-EX0647CEZZY | X | EX0647CE | | AE |
| | D751 | RH-DXA006WJZZ | X | Diode | | AB |
| | D752 | RH-DX0131CEZZY | X | Diode | | AB |
| | D755 | RH-DX0048GEZZY | X | DX0048GE | | AB |
| | D756 | RH-DX0441CEZZY | X | Diode | | AB |
| | D801 | RH-EX0613GEZZY | X | EX0613GE | | AB |
| | D806 | RH-DX0048GEZZY | X | DX0048GE | | AB |
| | D807 | RH-EX0625GEZZY | X | EX0625GE | | AB |
| | D808 | RH-DX0048GEZZY | X | DX0048GE | | AB |
| | D810 | RH-EX0263TAZZY | X | EX0263TA | | AB |
| | D811 | RH-EX0263TAZZY | X | EX0263TA | | AB |
| | D812 | RH-EX0263TAZZY | X | EX0263TA | | AB |

# PWB-A: DUNTKB989WEA0

## MAIN UNIT (Continued)

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|
| | | | **DIODES** | | | |
| D813 | RH-EX1393CEZZY | X | EX1393CE | | | AB |
| D815 | RH-EX0263TAZZY | X | EX0263TA | | | AB |
| D1004 | RH-EX1393CEZZY | X | EX1393CE | | | AB |
| D1081 | RH-DX0048GEZZY | X | DX0048GE | | | AB |
| D1085 | RH-EX1393CEZZY | X | EX1393CE | | | AB |
| D1086 | RH-EX1393CEZZY | X | EX1393CE | | | AB |
| D1087 | RH-EX1393CEZZY | X | EX1393CE | | | AB |
| D1088 | RH-EX1393CEZZY | X | EX1393CE | | | AB |
| D1089 | RH-EX0613GEZZY | X | EX0613GE | | | AB |
| D1090 | RH-EX1393CEZZY | X | EX1393CE | | | AB |
| D1091 | RH-DX0048GEZZY | X | DX0048GE | | | AB |
| | | | **PACKAGED CIRCUITS** | | | |
| PR702 | RMPTP0092CEZZ | X | Packaged Circuit | | | AD |
| X801 | RCRSAA010WJZZ | X | CRYSTAL | | | AB |
| | | | **FILTERS** | | | |
| CF201 | RFILC0447CEZZ | X | FiLC0447CE | | | AB |
| CF802 | RFILC0446CEZZ | X | FiLC0446CE | | | AB |
| SF201 | RFILC0405CEZZ | X | Filter | (4.5MHZ) | | AD |
| | | | **COILS** | | | |
| L202 | VP-CF270K0000Y | X | Peaking, | 27mH | | AB |
| L203 | VP-DF270K0000Y | X | Peaking, | 27mH | | AB |
| L204 | VP-XF1R2K0000Y | X | Peaking | 1.2mH | | AB |
| L602 | RCILP0223CEZZ | X | Coil, | | | AB |
| L603 | RCILZA006WJZZ | X | Coil, | | | AD |
| ⚠ L701 | RCILF0078PEZZ | X | Coil | | | AC |
| ⚠ L703 | RCILF0078PEZZ | X | Coil | | | AC |
| L751 | RCILP0225CEZZ | X | Coil, | | | AB |
| L801 | VP-DF100K0000Y | X | Peaking, | 10mH | | AB |
| L802 | VP-DF100K0000Y | X | Peaking, | 10mH | | AB |
| L803 | VP-DF100K0000Y | X | Peaking, | 10mH | | AB |
| L804 | VP-XF150K0000Y | X | Peaking | 15mH | | AB |
| L806 | VP-DF100K0000Y | X | Peaking, | 10mH | | AB |
| L807 | VP-XF1R2K0000Y | X | Peaking | 1.2mH | | AB |
| L1861 | VP-XF8R2K0000Y | X | Peaking, | 8.2mH | | AB |
| L1862 | VP-XF8R2K0000Y | X | Peaking, | 8.2mH | | AB |
| | | | **TRANSFORMERS** | | | |
| ⚠ T601 | RTRNZ0026PEZZ | X | Transformer | | | AD |
| ▲ ⚠ T602 | RTRNFA012WJZZ | X | H-Volt Transformer | | | AT |
| ⚠ T701 | RTRNWA036WJZZ | X | Transformer | | | AF |
| | | | **CAPACITORS** | | | |
| | | | ***[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]*** | | | |
| C201 | VCEA0A1CW476M+ | X | 47 | 16V | EL. | AB |
| C202 | VCEA0A0JW477M+ | X | 470 | 6.3V | EL. | AB |
| C203 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C204 | VCEA0A0JW477M+ | X | 470 | 6.3V | EL. | AB |
| C205 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C206 | VCEA0A1HW106M+ | X | 10 | 50V | EL. | AB |
| C207 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C208 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C209 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C210 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C211 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| C213 | VCKYCY1HB102KY | X | 1000p | 50V | Ceramic | AA |
| C301 | VCEA0A1CW477M+ | X | 470 | 16V | EL. | AB |
| C304 | VCEA0A1CW106M+ | X | 10 | 16V | EL. | AB |
| C307 | VCEA0A1HW474M+ | X | 0.47 | 50V | EL. | AB |
| C308 | VCKYCY1HF153ZY | X | 0.015 | 50V | Ceramic | AA |
| C310 | VCEA0A1HW225M+ | X | 2.2 | 50V | EL. | AB |
| C311 | VCEA0A1HW474M+ | X | 0.47 | 50V | EL. | AB |
| C312 | VCEA0A1HW335M+ | X | 3.3 | 50V | EL. | AB |
| C313 | VCKYCY1HF153ZY | X | 0.015 | 50V | Ceramic | AA |
| C321 | VCEA0A1HW335M+ | X | 3.3 | 50V | EL. | AB |
| C322 | VCEA0A1HW105M+ | X | 1 | 50V | EL. | AB |
| C377 | VCEA0A1CW107M+ | X | 100 | 16V | EL. | AB |
| C391 | VCKYPA1HB102K+ | X | 1000p | 50V | Ceramic | AA |
| C392 | VCQYTA1HM103J+ | X | 0.01 | 50V | Mylar | AB |
| C393 | VCEA0A1EW108M+ | X | 1000 | 25V | EL. | AB |
| C434 | VCEA0A1CW106M+ | X | 10 | 16V | EL. | AB |
| C435 | VCE9GA1CW106M+ | X | 10 | 16V | EL. | AB |
| C436 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C452 | VCEA9M1CW106M+ | X | 10 | 16V | EL. | AB |
| C4XX | VCKYPA1HF103Z+ | X | 0.01 | 50V | Ceramic | AA |
| C505 | VCEA0A1HW107M+ | X | 100 | 50V | EL. | AB |
| C508 | VCFYAA2AA224J+ | X | 0.22 | 100V | M-Poly. | AB |
| C509 | VCKYD41CY103NY | X | 0.01 | 16V | Ceramic | AB |
| C511 | VCEA0A1VW477M+ | X | 470 | 35V | EL. | AB |
| C512 | VCKYPA2HB102K+ | X | 1000p | 500V | Ceramic | AB |
| C513 | RC-EZA332WJZZ+ | X | 1000 | 35V | EL. | AB |
| C514 | VCFYSA1JB273J+ | X | 0.027 | 63V | M-Poly. | AB |
| C515 | VCEACA1HC335J+ | X | 3.3 | 50V | EL. | AB |
| C518 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C519 | VCKYCY1HB102KY | X | 1000p | 50V | Ceramic | AA |
| C601 | VCQYTA1HM563J+ | X | 0.056 | 50V | Mylar | AB |
| C602 | VCEA0A1HW475M+ | X | 4.7 | 50V | EL. | AB |
| C603 | VCEA0A1HW105M+ | X | 1 | 50V | EL. | AB |
| C604 | VCEA0A2EW336M+ | X | 33 | 250V | EL. | AB |
| C605 | VCKYPA2HB102K+ | X | 1000p | 500V | Ceramic | AB |
| C606 | VCKYPA2HB102K+ | X | 1000p | 500V | Ceramic | AB |
| ⚠ C607 | VCFPVC3ZA902H | X | 9000p | 1800V | M-Poly. | AB |
| C608 | VCKYPA2HB561K+ | X | 560p | 500V | Ceramic | AB |
| C610 | VCFYSB2EB823J | X | 0.082 | 250V | M.Poly.. | AB |
| C611 | VCFPVC2DB244J | X | 0.24 | 200V | M-Poly. | AB |
| C641 | VCEA0A1EW108M+ | X | 1000 | 25V | EL. | AB |
| C642 | VCEA0A1EW476M+ | X | 47 | 25V | EL. | AB |
| C643 | VCEA0A1CW477M+ | X | 470 | 16V | EL. | AB |
| C650 | VCKYPA2HB101K+ | X | 100p | 500V | Ceramic | AB |
| ⚠ C701 | RC-FZ029SCEZZ | X | 0.22 | 250V | Ceramic | AB |
| C702 | RC-KZ0029CEZZ+ | X | 0.01 | AC250V | Ceramic | AB |
| C703 | RC-KZ0029CEZZ+ | X | 0.01 | AC250V | Ceramic | AB |
| C705 | RC-EZA070WJZZ | X | 470 | 200V | EL. | AE |
| C706 | VCQYTA1HM103J+ | X | 0.01 | 50V | Mylar | AB |
| ⚠ C711 | VCFYFA1HA334J+ | X | 0.33 | 50V | Mylar | AB |
| C713 | RC-KZ016SCEZZ | X | 470p | 250V | Ceramic | AB |
| C718 | VCKYPA2HB472K+ | X | 4700p | 500V | Ceramic | AB |
| C737 | VCEA0A1EW226M+ | X | 22 | 25V | EL. | AB |
| C738 | RC-KZ0040CEZZ | X | 820p | 2kV | Ceramic | AB |
| C743 | VCKYPH3DB561K | X | 560p | 2kV | Ceramic | AB |
| C744 | VCQYTA1HM104J+ | X | 0.1 | 50V | Mylar | AB |
| C751 | RC-KZ0106GEZZ | X | 3300p | AC250V | Ceramic | AB |
| C752 | VCKYPH3DB561K | X | 560p | 2kV | Ceramic | AB |
| C753 | RC-EZ0724CEZZ | X | 100 | 160V | EL. | AC |
| C754 | RC-EZ0638CEZZ | X | 33 | 160V | EL. | AC |
| C755 | VCQYTA1HM103J+ | X | 0.01 | 50V | Mylar | AB |
| C756 | VCEA0A1EW108M+ | X | 1000 | 25V | EL. | AB |
| C758 | VCEA0A1HW225M+ | X | 2.2 | 50V | EL. | AB |
| C759 | VCKYCY1HB102KY | X | 1000p | 50V | Ceramic | AA |
| C784 | VCKYCY1HB103KY | X | 0.01 | 50V | Ceramic | AA |
| C801 | VCFYFA1HA105J+ | X | 1 | 50V | M-Poly. | AB |
| C802 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C803 | VCEA0A1AW476M+ | X | 47 | 10V | EL. | AB |
| C804 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C805 | VCEA0A1HW105M+ | X | 1 | 50V | EL. | AB |
| C806 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C807 | VCEA0A1CW337M+ | X | 330 | 16V | EL. | AB |
| C808 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C809 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C810 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C811 | VCKYCY1EF104ZY | X | 0.1 | 25V | Ceramic | AA |
| C812 | VCKYCY1EF104ZY | X | 0.1 | 25V | Ceramic | AA |
| C813 | VCKYCY1EF104ZY | X | 0.1 | 25V | Ceramic | AA |
| C814 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C815 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C816 | VCKYCY1EF104ZY | X | 0.1 | 25V | Ceramic | AA |
| C817 | VCEA0A1AW107M+ | X | 100 | 10V | EL. | AB |

# PWB-A: DUNTKB989WEA0
# MAIN UNIT

## CAPACITORS

***[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]***

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|
| C818 | VCEA0A1HW475M+ | X | 4.7 | 50V | EL. | AB |
| C819 | VCCCCY1HH220JY | X | 22p | 50V | Ceramic | AA |
| C820 | VCEA0A1HW474M+ | X | 0.47 | 50V | EL. | AB |
| C821 | VCKYCY1HF153ZY | X | 0.015 | 50V | Ceramic | AA |
| C822 | VCE9GA1HW105M+ | X | 1 | 50V | EL. | AB |
| C823 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C824 | VCEA0A1CW337M+ | X | 330 | 16V | EL. | AB |
| C825 | VCE9EM1HW105M+ | X | 1 | 50V | EL. | AB |
| C826 | VCKYPA1HF103Z+ | X | 0.01 | 50V | Ceramic | AA |
| C827 | VCEA9M1CW476M+ | X | 47 | 16V | EL. | AB |
| C828 | VCKYPA1HB103K+ | X | 0.01 | 50V | Ceramic | AB |
| C829 | VCEA0A1CW476M+ | X | 47 | 16V | EL. | AB |
| C831 | VCKYCY1EF104ZY | X | 0.1 | 25V | Ceramic | AA |
| C833 | VCKYCY1EF104ZY | X | 0.1 | 25V | Ceramic | AA |
| C834 | VCEA0A1CW107M+ | X | 100 | 16V | EL. | AB |
| C835 | VCEA0A1CW106M+ | X | 10 | 16V | EL. | AB |
| C836 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C837 | VCEA0A1HW105M+ | X | 1 | 50V | EL. | AB |
| C839 | VCCCCY1HH680JY | X | 68p | 50V | Ceramic | AA |
| C840 | VCKYCY1CF474ZY | X | 0.47 | 16V | Ceramic | AB |
| C841 | VCCCCY1HH101JY | X | 100p | 50V | Ceramic | AA |
| C842 | VCEA9M1HW474M+ | X | 0.47 | 50V | EL. | AB |
| C843 | VCEA9M1HW105M+ | X | 1 | 50V | EL. | AB |
| C845 | VCKYCY1CF224ZY | X | 0.22 | 16V | Ceramic | AA |
| C846 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C847 | VCCCCY1HH220JY | X | 22p | 50V | Ceramic | AA |
| C848 | VCEA0A1HW105M+ | X | 1 | 50V | EL. | AB |
| C1001 | VCEA0A0JW107M+ | X | 100 | 6.3V | EL. | AB |
| C1003 | VCEA0A1CW106M+ | X | 10 | 16V | EL. | AB |
| C1004 | VCKYCY1CF474ZY | X | 0.47 | 16V | Ceramic | AB |
| C1006 | VCEA0A1HW225M+ | X | 2.2 | 50V | EL. | AB |
| C1007 | VCEA0A1CW107M+ | X | 100 | 16V | EL. | AB |
| C1008 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C1009 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C1011 | VCKYCY1HB221KY | X | 220p | 50V | Ceramic | AA |
| C1012 | VCEA0A1HW105M+ | X | 1 | 50V | EL. | AB |
| C1013 | VCKYCY1HB102KY | X | 1000p | 50V | Ceramic | AA |
| C1014 | VCEA0A1HW475M+ | X | 4.7 | 50V | EL. | AB |
| C1015 | VCCCCY1HH101JY | X | 100p | 50V | Ceramic | AA |
| C1081 | VCEA0A1HW104M+ | X | 0.1 | 50V | EL. | AB |
| C1849 | VCFYFA1HA223J+ | X | 0.022 | 50V | Mylar | AB |
| C1855 | VCKYCY1HB561KY | X | 560p | 50V | Ceramic | AA |
| C1856 | VCKYCY1HB102KY | X | 1000p | 50V | Ceramic | AA |
| C1861 | VCCCCY1HH221JY | X | 220p | 50V | Ceramic | AA |
| C1862 | VCKYCY1HB102KY | X | 1000p | 50V | Ceramic | AA |
| C1863 | VCCCCY1HH221JY | X | 220p | 50V | Ceramic | AA |
| C1864 | VCKYCY1HB102KY | X | 1000p | 50V | Ceramic | AA |

## RESISTORS

***[M-Ox.··· Metal Oxide, M-Film ··· Metal Film]***

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|
| RJ1 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ7 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ9 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ11 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ19 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ22 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ23 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ33 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ35 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ37 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ39 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ41 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ42 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ43 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ47 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ50 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ51 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ52 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ53 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ60 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ62 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ63 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ65 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ69 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ70 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ71 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ72 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ75 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ76 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| R201 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R202 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R205 | VRS-CY1JF680JY | X | 68 | 1/16W | M-Ox. | AA |
| R206 | VRS-CY1JF122JY | X | 1.2k | 1/16W | M-Ox. | AA |
| R207 | VRS-CY1JF221JY | X | 220 | 1/16W | M-Ox. | AA |
| R208 | VRS-CY1JF331JY | X | 330 | 1/16W | M-Ox. | AA |
| R209 | VRS-CY1JF392JY | X | 3.9k | 1/16W | M-Ox. | AA |
| R216 | VRS-VV3LB333J | X | 33k | 3W | M-Ox. | AB |
| R220 | VRS-CY1JF221JY | X | 220 | 1/16W | M-Ox. | AA |
| R301 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R302 | VRN-VV3DB1R2J | X | 1.2 | 2W | M-Film | AB |
| R303 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R304 | VRD-RA2BE683JY | X | 68k | 1/8W | Carbon | AA |
| R305 | VRS-CY1JF274JY | X | 270k | 1/16W | M-Ox. | AA |
| R307 | VRS-CY1JF222JY | X | 2.2k | 1/16W | M-Ox. | AA |
| R308 | VRS-CY1JF392JY | X | 3.9k | 1/16W | M-Ox. | AA |
| R310 | VRS-CY1JF473JY | X | 47k | 1/16W | M-Ox. | AA |
| R311 | VRD-RA2BE272JY | X | 2.7k | 1/8W | Carbon | AA |
| R314 | VRS-CY1JF392JY | X | 3.9k | 1/16W | M-Ox. | AA |
| R315 | VRS-CY1JF222JY | X | 2.2k | 1/16W | M-Ox. | AA |
| R362 | VRS-CY1JF332JY | X | 3.3k | 1/16W | M-Ox. | AA |
| R363 | VRS-CY1JF564JY | X | 560k | 1/16W | M-Ox. | AA |
| R364 | VRS-CY1JF332JY | X | 3.3k | 1/16W | M-Ox. | AA |
| R365 | VRS-CY1JF564JY | X | 560k | 1/16W | M-Ox. | AA |
| R381 | VRS-CY1JF564JY | X | 560k | 1/16W | M-Ox. | AA |
| R382 | VRS-CY1JF332JY | X | 3.3k | 1/16W | M-Ox. | AA |
| R383 | VRS-CY1JF564JY | X | 560k | 1/16W | M-Ox. | AA |
| R384 | VRS-CY1JF332JY | X | 3.3k | 1/16W | M-Ox. | AA |
| R431 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R432 | VRS-CY1JF750JY | X | 75 | 1/16W | M-Ox. | AA |
| R433 | VRS-CY1JF750JY | X | 75 | 1/16W | M-Ox. | AA |
| R434 | VRS-CY1JF750JY | X | 75 | 1/16W | M-Ox. | AA |
| R435 | VRS-CY1JF750JY | X | 75 | 1/16W | M-Ox. | AA |
| R437 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R461 | VRS-CY1JF750JY | X | 75 | 1/16W | M-Ox. | AA |
| R462 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R502 | VRS-RG3AB102J+ | X | 1k | 1W | M-Ox. | AB |
| R503 | VRN-RL3DB1R2J+ | X | 1.2 | 2W | M-Film | AB |
| R504 | VRS-CY1JF222JY | X | 2.2k | 1/16W | M-Ox. | AA |
| R506 | VRS-RG3AB331J+ | X | 330 | 1W | M-Ox. | AB |
| R507 | VRD-RM2HD1R0JY | X | 1 | 1/2W | Carbon | AA |
| R513 | VRD-RM2HD333JY | X | 33k | 1/2W | Carbon | AA |
| R514 | VRD-RM2HD682JY | X | 6.8k | 1/2W | Carbon | AA |
| R520 | VRS-CY1JF123JY | X | 12k | 1/16W | M-Ox. | AA |
| R522 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R523 | VRD-RA2BE101JY | X | 100 | 1/8W | Carbon | AA |
| R524 | VRD-RA2BE103JY | X | 10k | 1/8W | Carbon | AA |
| R525 | VRD-RA2BE122JY | X | 1.2k | 1/8W | Carbon | AA |
| R526 | VRD-RA2BE101JY | X | 100 | 1/8W | Carbon | AA |
| R528 | VRS-CY1JF683JY | X | 68k | 1/16W | M-Ox. | AA |
| R602 | VRD-RA2BE393JY | X | 39k | 1/8W | Carbon | AA |
| R603 | VRD-RA2BE273JY | X | 27k | 1/8W | Carbon | AA |
| R604 | VRD-RA2BE473JY | X | 47k | 1/8W | Carbon | AA |

# PWB-A: DUNTKB989WEA0
# MAIN UNIT

## RESISTORS
***[M-Ox.··· Metal Oxide, M-Film ··· Metal Film]***

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|
| R605 | VRD-RM2HD104JY | X | 100k | 1/2W | Carbon | AA |
| R606 | VRN-RL3LBR27J+ | X | 0.27 | 3W | M-Film | AB |
| ⚠ R608 | VRD-RM2HD102JY | X | 1.0k | 1/2W | Carbon | AA |
| ⚠ R611 | VRN-RL3ABR27J+ | X | 0.27 | 1W | M-Film | AB |
| ⚠ R612 | VRD-RM2HD270JY | X | 27 | 1/2W | Carbon | AA |
| R613 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| R614 | VRD-RA2BE154JY | X | 150k | 1/8W | Carbon | AA |
| R615 | VRD-RA2BE102JY | X | 1k | 1/8W | Carbon | AA |
| R616 | VRD-RA2BE102JY | X | 1k | 1/8W | Carbon | AA |
| R617 | VRS-CY1JF123JY | X | 12k | 1/16W | M-Ox. | AA |
| R618 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| ⚠ R621 | VRN-RL2HC4R7J+ | X | 4.7 | 1/2W | M-Film | AB |
| R622 | VRS-VV3DB682J | X | 6.8k | 2W | M-Ox. | AB |
| R631 | VRS-KT3LB391J | X | 390 | 3W | M-Ox. | AB |
| R632 | VRS-RG3LB122J+ | X | 1.2k | 3W | M-Ox. | AB |
| ⚠ R633 | VRS-KA3NG3R3K | X | 3.3 | 7.0W | M-Ox. | AB |
| R637 | VRD-RA2BE331JY | X | 330 | 1/8W | Carbon | AA |
| R638 | VRD-RA2BE331JY | X | 330 | 1/8W | Carbon | AA |
| R639 | VRD-RM2HD562JY | X | 5.6k | 1/2W | Carbon | AA |
| R642 | VRD-RM2HD470JY | X | 47 | 1/2W | Carbon | AA |
| R643 | VRS-KA3HG912J | X | 9.1k | 5W | M-Ox. | AB |
| R661 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R662 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R701 | VRW-KQ3NC1R5K | X | 1.5 | 7W | Cement | AB |
| R702 | VRD-RM2HD100JY | X | 10 | 1/2W | Carbon | AA |
| R705 | VRN-VV3DBR33J | X | 0.33 | 2W | M-Film | AB |
| R706 | VRN-VV3DBR33J | X | 0.33 | 2W | M-Film | AB |
| R707 | VRD-RM2HD270JY | X | 27 | 1/2W | Carbon | AA |
| R708 | VRD-RA2BE102JY | X | 1k | 1/8W | Carbon | AA |
| R710 | VRS-RG2HC103J+ | X | 10k | 1/2W | M-Ox. | AB |
| R711 | VRD-RA2BE394JY | X | 390k | 1/8W | Carbon | AA |
| R713 | VRD-RM2HD122JY | X | 1.2k | 1/2W | Carbon | AA |
| R715 | VRD-RA2BE150JY | X | 15 | 1/8W | Carbon | AA |
| R716 | VRD-RA2BE223JY | X | 22k | 1/8W | Carbon | AA |
| R717 | RR-DZ0049CEZZY | X | 3.9M | 1/2W | Solid | AB |
| R725 | VRD-RM2HD821JY | X | 820 | 1/2W | Carbon | AA |
| R726 | VRN-RL2HCR47J+ | X | 0.47 | 1/2W | M-Film | AB |
| R742 | VRD-RA2BE183JY | X | 18k | 1/8W | Carbon | AA |
| R743 | VRS-CY1JF332JY | X | 3.3k | 1/16W | M-Ox. | AA |
| R744 | VRS-CY1JF332JY | X | 3.3k | 1/16W | M-Ox. | AA |
| R745 | VRD-RA2BE472JY | X | 4.7k | 1/8W | Carbon | AA |
| R746 | VRD-RA2BE223JY | X | 22k | 1/8W | Carbon | AA |
| R753 | VRD-RM2HD124JY | X | 120k | 1/2W | Carbon | AA |
| R754 | VRN-RL3DB8R2J+ | X | 8.2 | 2W | M-Film | AB |
| R755 | VRS-RG3DB150J+ | X | 15 | 2W | M-Ox. | AB |
| R756 | VRS-RG3DB121J+ | X | 120 | 2W | M-Ox. | AB |
| R759 | VRS-RG3DB101J+ | X | 100 | 2W | M-Ox. | AB |
| R766 | VRS-CY1JF333JY | X | 33k | 1/16W | M-Ox. | AA |
| R767 | VRD-RA2BE103JY | X | 10k | 1/8W | Carbon | AA |
| R768 | VRS-CY1JF332JY | X | 3.3k | 1/16W | M-Ox. | AA |
| R802 | VRS-CY1JF682JY | X | 6.8k | 1/16W | M-Ox. | AA |
| R803 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R804 | VRS-CY1JF222JY | X | 2.2k | 1/16W | M-Ox. | AA |
| R805 | VRS-CY1JF222JY | X | 2.2k | 1/16W | M-Ox. | AA |
| R806 | VRS-CY1JF222JY | X | 2.2k | 1/16W | M-Ox. | AA |
| R807 | VRS-CY1JF222JY | X | 2.2k | 1/16W | M-Ox. | AA |
| R808 | VRD-RA2BE273JY | X | 27k | 1/8W | Carbon | AA |
| R810 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R812 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R814 | VRS-CY1JF473JY | X | 47k | 1/16W | M-Ox. | AA |
| R815 | VRS-CY1JF473JY | X | 47k | 1/16W | M-Ox. | AA |
| R816 | VRS-CY1JF223JY | X | 22k | 1/16W | M-Ox. | AA |
| R817 | VRS-CY1JF473JY | X | 47k | 1/16W | M-Ox. | AA |
| R818 | VRS-RG3AB151J+ | X | 150 | 1W | M-Ox. | AB |
| R823 | VRD-RA2BE101JY | X | 100 | 1/8W | Carbon | AA |
| R824 | VRD-RA2BE101JY | X | 100 | 1/8W | Carbon | AA |
| R826 | VRD-RA2BE101JY | X | 100 | 1/8W | Carbon | AA |
| R827 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R828 | VRS-CY1JF471JY | X | 470 | 1/16W | M-Ox. | AA |
| R829 | VRS-CY1JF472JY | X | 4.7k | 1/16W | M-Ox. | AA |
| R830 | VRS-CY1JF393JY | X | 39k | 1/16W | M-Ox. | AA |
| R831 | VRS-CY1JF271JY | X | 270 | 1/16W | M-Ox. | AA |
| R832 | VRS-CY1JF822JY | X | 8.2k | 1/16W | M-Ox. | AA |
| R833 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R835 | VRS-CY1JF332JY | X | 3.3k | 1/16W | M-Ox. | AA |
| R836 | VRD-RA2BE470JY | X | 47 | 1/8W | Carbon | AA |
| R838 | VRS-CY1JF105JY | X | 1M | 1/16W | M-Ox. | AA |
| R839 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R840 | VRS-CY1JF124JY | X | 120k | 1/16W | M-Ox. | AA |
| R841 | VRD-RA2BE821JY | X | 820 | 1/8W | Carbon | AA |
| R842 | VRS-CY1JF471JY | X | 470 | 1/16W | M-Ox. | AA |
| R843 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R844 | VRS-CY1JF185JY | X | 1.8M | 1/16W | M-Ox. | AA |
| R845 | VRS-CY1JF185JY | X | 1.8M | 1/16W | M-Ox. | AA |
| R1002 | VRS-CY1JF183JY | X | 18k | 1/16W | M-Ox. | AA |
| R1003 | VRS-CY1JF822JY | X | 8.2k | 1/16W | M-Ox. | AA |
| R1006 | VRS-CY1JF822JY | X | 8.2k | 1/16W | M-Ox. | AA |
| R1007 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1008 | VRS-CY1JF183JY | X | 18k | 1/16W | M-Ox. | AA |
| R1009 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1021 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R1022 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R1023 | VRD-RA2BE271JY | X | 270 | 1/8W | Carbon | AA |
| R1024 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R1026 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| R1027 | VRS-CY1JF104JY | X | 100k | 1/16W | M-Ox. | AA |
| R1031 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R1032 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1034 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1035 | VRD-RA2BE101JY | X | 100 | 1/8W | Carbon | AA |
| R1036 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1037 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1038 | VRS-CY1JF562JY | X | 5.6k | 1/16W | M-Ox. | AA |
| R1039 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R1040 | VRD-RA2BE273JY | X | 27k | 1/8W | Carbon | AA |
| R1041 | VRD-RA2BE103JY | X | 10k | 1/8W | Carbon | AA |
| R1042 | VRD-RA2BE101JY | X | 100 | 1/8W | Carbon | AA |
| R1043 | VRS-CY1JF104JY | X | 100k | 1/16W | M-Ox. | AA |
| R1045 | VRD-RA2BE101JY | X | 100 | 1/8W | Carbon | AA |
| R1046 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R1047 | VRS-CY1JF183JY | X | 18k | 1/16W | M-Ox. | AA |
| R1048 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R1049 | VRS-CY1JF183JY | X | 18k | 1/16W | M-Ox. | AA |
| R1051 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R1052 | VRS-CY1JF104JY | X | 100k | 1/16W | M-Ox. | AA |
| R1053 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R1054 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R1059 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1061 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R1062 | VRS-CY1JF105JY | X | 1M | 1/16W | M-Ox. | AA |
| R1063 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1064 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1065 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1066 | VRS-CY1JF561JY | X | 560 | 1/16W | M-Ox. | AA |
| R1067 | VRS-CY1JF152JY | X | 1.5k | 1/16W | M-Ox. | AA |
| R1068 | VRS-CY1JF331JY | X | 330 | 1/16W | M-Ox. | AA |
| R1069 | VRS-CY1JF152JY | X | 1.5k | 1/16W | M-Ox. | AA |
| R1070 | VRS-CY1JF331JY | X | 330 | 1/16W | M-Ox. | AA |
| R1071 | VRS-CY1JF152JY | X | 1.5k | 1/16W | M-Ox. | AA |
| R1072 | VRS-CY1JF221JY | X | 220 | 1/16W | M-Ox. | AA |
| R1073 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|

# PWB-A: DUNTKB989WEA0
# MAIN UNIT

**RESISTORS**

***[M-Ox.··· Metal Oxide, M-Film ··· Metal Film]***

| | | | | | | |
|---|---|---|---|---|---|---|
| R1074 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1075 | VRS-CY1JF331JY | X | 330 | 1/16W | M-Ox. | AA |
| R1076 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R1081 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1849 | VRS-CY1JF222JY | X | 2.2k | 1/16W | M-Ox. | AA |
| R1850 | VRS-CY1JF472JY | X | 4.7k | 1/16W | M-Ox. | AA |
| R1851 | VRS-CY1JF221JY | X | 220 | 1/16W | M-Ox. | AA |
| R1852 | VRS-CY1JF221JY | X | 220 | 1/16W | M-Ox. | AA |
| R1853 | VRS-CY1JF221JY | X | 220 | 1/16W | M-Ox. | AA |
| R1854 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R1855 | VRD-RA2BE102JY | X | 1k | 1/8W | Carbon | AA |
| R1861 | VRS-CY1JF121JY | X | 120 | 1/16W | M-Ox. | AA |
| R1862 | VRS-CY1JF121JY | X | 120 | 1/16W | M-Ox. | AA |

**SWITCHES**

| | | | | | | |
|---|---|---|---|---|---|---|
| S1001 | QSW-K0202PEZZ+ | X | Switch, | | | AB |
| S1002 | QSW-K0202PEZZ+ | X | Switch, | | | AB |
| S1003 | QSW-K0202PEZZ+ | X | Switch, | | | AB |
| S1004 | QSW-K0202PEZZ+ | X | Switch, | | | AB |
| S1005 | QSW-K0202PEZZ+ | X | Switch, | | | AB |
| S1006 | QSW-K0114CEZZ | X | Switch, | | | AC |

**FERRITE BEAD**

| | | | | | | |
|---|---|---|---|---|---|---|
| FB701 | RBLN-0020CEZZ+ | X | Ferrite | Bead | | AB |

**MISCELLANEOUS PARTS**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⚠ | ACC701 | QACCDA015WJPZ | X | AC-Cord | | | AE |
| ⚠ | F701 | QFS-B4023CEZZ | X | FUSE - | 4A | 125V | AB |
| | FH701 | QFSHD1013CEZZ+ | X | FUSE | CLIP | | AB |
| | FH702 | QFSHD1014CEZZ+ | X | FUSE | CLIP | | AB |
| | J1 | VW7UGB3-240KK | X | Jumper | Cable | (240MM) | AB |
| | J3 | VW7UGB0-090KK | X | Wire | (Black | 90MM) | AA |
| | J50 | VW7UGB7-070KK | X | Wire | (Purple | 70MM) | AA |
| | J401 | QJAKGA015WJZZ | X | Jack, | 9Pin | | AD |
| | J402 | QJAKE0108CEZZ | X | Jack, | 3Pin | | AB |
| | J403 | QJAKE0183CEZZ | X | Jack, | 3Pin | | AB |
| | J404 | QJAKE0184CEZZ | X | Jack, | 3Pin | | AB |
| | J405 | QJAKG0093CEZZ | X | Rear | AV In | Jack | AD |
| | J406 | QJAKFA008WJZZ | X | Jack | | | AC |
| | P302 | QPLGN0461CEZZA | X | Plug, | 4pin | (S1-4) | AB |
| | P407 | QPLGN0361CEZZA | X | Plug, | 3pin | (TP651-3) | AB |
| | P601 | QPLGN0660CEZZ | X | Plug, | (6 Pins) | | AB |
| | P602 | QPLGN0461CEZZA | X | Plug, | 4pin | (S1-4) | AB |
| | P603 | QPLGN0361CEZZA | X | Plug, | 3pin | (TP651-3) | AB |
| | P701 | QPLGN0260CEZZ | X | Plug, | 2pin | (M1-2) | AB |
| | P705 | QTIPM0083CEZZ | X | Tip | | | AB |
| | P1001 | QPLGN0561CEZZA | X | Plug, | 5Pin | (KA) | AB |
| | P1002 | QPLGN0561CEZZ | X | Plug, | (5 Pins) | | AB |
| | P1007 | QPLGN0461CEZZA | X | Plug, | 4pin | (S1-4) | AB |
| | P1008 | QPLGN0461CEZZA | X | Plug, | 4pin | (S1-4) | AB |
| | P1011 | QPLGN0361CEZZA | X | Plug, | 3pin | (TP651-3) | AB |
| | P1012 | QPLGN0361CEZZA | X | Plug, | 3pin | (TP651-3) | AB |
| | VA701 | RH-VXA009WJZZ | X | VARISTOR | | | AB |
| | RMC1001 | RRMCU0222CEZZ | X | R/C RECEIVER | | | AD |
| ⚠ | RY701 | RRLYJ0093CEZZ | X | Relay | | | AD |
| | | PRDAR0224PEFW | X | Heat | Sink | for Q602 | AB |
| | | PRDARA010WJFW | X | Heat | Sink | for IC501 | AB |
| | | PRDARA026WJFW | X | Heat | Sink | for Q701 | AC |

# PWB-B: DUNTKA599WEB4
# CRT Unit

**DIODE**

| | | | | |
|---|---|---|---|---|
| D859 | VHD1SS119//-1Y | X | Diode | AA |
| D898 | VHD1SS119//-1Y | X | Diode | AA |

**TRANSISTORS**

| | | | | |
|---|---|---|---|---|
| Q853 | VS2SC3789//2E | X | 2SC3789 | AB |
| Q854 | VS2SC3789//2E | X | 2SC3789 | AB |
| Q855 | VS2SC3789//2E | X | 2SC3789 | AB |
| Q894 | VS2SA1015Y/1E+ | X | 2SA1015Y | AB |

**FILTERS**

| | | | | | | |
|---|---|---|---|---|---|---|
| L851 | VP-MK820K0000+ | X | Peaking | | 82mH | AB |

**CAPACITORS**

***[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]***

| | | | | | | |
|---|---|---|---|---|---|---|
| C851 | VCKYPA1HB221K+ | X | 220p | 50V | Ceramic | AA |
| C852 | VCKYPA1HB221K+ | X | 220p | 50V | Ceramic | AA |
| C853 | VCKYPA1HB221K+ | X | 220p | 50V | Ceramic | AA |
| C880 | RC-KZ0153CEZZ | X | 1000p | 3kV | Ceramic | AB |
| C893 | VCEA0A1CW336M+ | X | 33 | 16V | EL. | AB |

**RESISTORS**

***[M-Ox.··· Metal Oxide, M-Film ··· Metal Film]***

| | | | | | | |
|---|---|---|---|---|---|---|
| R849 | VRD-RA2BE271JY | X | 270 | 1/8W | Carbon | AA |
| R850 | VRD-RA2BE470JY | X | 47 | 1/8W | Carbon | AA |
| R851 | VRD-RA2BE470JY | X | 47 | 1/8W | Carbon | AA |
| R852 | VRD-RA2BE470JY | X | 47 | 1/8W | Carbon | AA |
| R854 | VRD-RA2BE331JY | X | 330 | 1/8W | Carbon | AA |
| R855 | VRD-RA2BE331JY | X | 330 | 1/8W | Carbon | AA |
| R859 | VRS-VV3DB123J | X | 12k | 2W | M-Ox. | AB |
| R861 | VRS-VV3DB123J | X | 12k | 2W | M-Ox. | AB |
| R863 | VRS-VV3DB123J | X | 12k | 2W | M-Ox. | AB |
| R864 | VRD-RA2BE470JY | X | 47 | 1/8W | Carbon | AA |
| R876 | VRD-RA2BE121JY | X | 120 | 1/8W | Carbon | AA |
| R877 | VRD-RA2BE121JY | X | 120 | 1/8W | Carbon | AA |
| R878 | VRD-RA2BE121JY | X | 120 | 1/8W | Carbon | AA |
| R880 | VRD-RM2HD332JY | X | 3.3k | 1/2W | Carbon | AA |
| R881 | VRD-RM2HD332JY | X | 3.3k | 1/2W | Carbon | AA |
| R882 | VRD-RM2HD332JY | X | 3.3k | 1/2W | Carbon | AA |
| R889 | VRD-RA2BE821JY | X | 820 | 1/8W | Carbon | AA |
| R891 | VRD-RA2BE561JY | X | 560 | 1/8W | Carbon | AA |
| R892 | VRD-RA2BE391JY | X | 390 | 1/8W | Carbon | AA |
| R894 | VRD-RA2BE152JY | X | 1.5k | 1/8W | Carbon | AA |
| R895 | VRD-RA2BE561JY | X | 560 | 1/8W | Carbon | AA |

**MISCELLANEOUS PARTS**

| | | | | | | |
|---|---|---|---|---|---|---|
| P860 | QPLGN0461CEZZ | X | Plug, | 4pin | (S1-4) | AB |
| P880 | QPLGN0561CEZZ | X | Plug, | (5 Pins) | | AB |
| SC851 | QSOCV0933CEZZ | X | SOCKET (CRT) | | | AC |

# PWB-E: DUNTKB271WEA3
# MTS MODULE Unit

**INTEGRATED CIRCUITS**

| | | | | |
|---|---|---|---|---|
| IC3001 | VHICXA2074Q-1S | X | CXA2074Q_A1_ | AP |
| IC3002 | VHIMM1501XN-1Y | X | MM1501XN | AC |

**TRANSISTOR**

| | | | | |
|---|---|---|---|---|
| Q3001 | VS2SD601AR/-1Y | X | 2SD601AR | AB |
| Q3002 | VS2SD601AR/-1Y | X | 2SD601AR | AB |
| Q3004 | VS2SD601AR/-1Y | X | 2SD601AR | AB |
| Q3005 | VS2SD601AR/-1Y | X | 2SD601AR | AB |
| Q3006 | VS2SD601AR/-1Y | X | 2SD601AR | AB |
| Q3007 | VS2SD601AR/-1Y | X | 2SD601AR | AB |

**CAPACITORS**

***[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]***

| | | | | | | |
|---|---|---|---|---|---|---|
| C3001 | VCE9GA1HW475M+ | X | 4.7 | 50V | EL. | AB |
| C3002 | VCKYCY1HB562KY | X | 5600p | 50V | Ceramic | AA |
| C3003 | VCQYTA1HM123J+ | X | 0.012 | 50V | Mylar | AB |
| C3004 | VCEA0A1HW105M+ | X | 1 | 50V | EL. | AB |
| C3005 | VCEA0A1HW475M+ | X | 4.7 | 50V | EL. | AB |
| C3006 | VCEA0A1CW106M+ | X | 10 | 16V | EL. | AB |
| C3007 | VCEA0A1HW475M+ | X | 4.7 | 50V | EL. | AB |
| C3008 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C3009 | VCEA0A1CW227M+ | X | 220 | 16V | EL. | AB |
| C3010 | VCE9GA1HW475M+ | X | 4.7 | 50V | EL. | AB |
| C3011 | VCEA0A1HW475M+ | X | 4.7 | 50V | EL. | AB |
| C3012 | VCE9GA1HW475M+ | X | 4.7 | 50V | EL. | AB |
| C3013 | VCKYCY1HB272KY | X | 2700p | 50V | Ceramic | AA |
| C3014 | VCQYTA1HM473J+ | X | 0.047 | 50V | Mylar | AB |
| C3015 | VCEACA1HC335K+ | X | 3.3 | 50V | EL. | AB |
| C3016 | VCE9GA1HW475M+ | X | 4.7 | 50V | EL. | AB |
| C3017 | VCEACA1CC106K+ | X | 10 | 16V | EL. | AB |

# PWB-E: DUNTKB271WEA3
# MTS MODULE Unit

### CAPACITORS
***[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]***

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|
| C3018 | VCEA0A1HW105M+ | X | 1 | 50V | EL. | AB |
| C3019 | VCEA0A1CW106M+ | X | 10 | 16V | EL. | AB |
| C3020 | VCEA0A1CW106M+ | X | 10 | 16V | EL. | AB |
| C3021 | VCEA0A1CW106M+ | X | 10 | 16V | EL. | AB |
| C3022 | VCEA0A1CW106M+ | X | 10 | 16V | EL. | AB |
| C3023 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C3024 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C3025 | VCKYCY1HF473ZY | X | 0.047 | 50V | Ceramic | AB |
| C3026 | VCKYCY1HF473ZY | X | 0.047 | 50V | Ceramic | AB |
| C3030 | VCQYTA1HM682J+ | X | 6800P | 50V | Mylar | AB |
| C3031 | VCKYCY1HF682ZY | X | 6800p | 50V | Ceramic | AA |
| C3034 | VCEA0A1HW224M+ | X | 0.22 | 50V | EL. | AB |
| C3037 | VCEA0A1HW335M+ | X | 3.3 | 50V | EL. | AB |
| C3038 | VCEA0A1HW335M+ | X | 3.3 | 50V | EL. | AB |
| C3039 | VCEA0A1HW224M+ | X | 0.22 | 50V | EL. | AB |
| C3042 | VCKYCY1HB681KY | X | 680p | 50V | Ceramic | AA |
| C3043 | VCKYCY1HB681KY | X | 680p | 50V | Ceramic | AA |
| C3044 | VCEA0A1EW476M+ | X | 47 | 25V | EL. | AB |
| C3045 | VCEA0A1HW335M+ | X | 3.3 | 50V | EL. | AB |
| C3046 | VCEA0A1HW335M+ | X | 3.3 | 50V | EL. | AB |
| C3047 | VCEA0A1HW335M+ | X | 3.3 | 50V | EL. | AB |
| C3048 | VCEA0A1HW335M+ | X | 3.3 | 50V | EL. | AB |
| C3080 | VCEA0A1CW106M+ | X | 10 | 16V | EL. | AB |
| C3081 | VCEA0A1CW106M+ | X | 10 | 16V | EL. | AB |
| C3082 | VCKYCY1HF103ZY | X | 0.01 | 50V | Ceramic | AA |
| C3083 | VCEAKA1CW106M+ | X | 10 | 16V | EL. | AB |

### RESISTORS
**[M-Ox.··· Metal Oxide, M-Film ··· Metal Film]**

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|
| RJ2 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ3 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ4 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ10 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ13 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ14 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ15 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ16 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| RJ17 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| R3001 | VRS-CY1JF221JY | X | 220 | 1/16W | M-Ox. | AA |
| R3002 | VRS-CY1JF221JY | X | 220 | 1/16W | M-Ox. | AA |
| R3003 | VRS-CY1JF105JY | X | 1M | 1/16W | M-Ox. | AA |
| R3004 | VRS-CY1JF104JY | X | 100k | 1/16W | M-Ox. | AA |
| R3005 | VRS-CY1JF623JY | X | 62k | 1/16W | M-Ox. | AA |
| R3007 | VRS-CY1JF332JY | X | 3.3k | 1/16W | M-Ox. | AA |
| R3008 | VRS-CY1JF302JY | X | 3k | 1/16W | M-Ox. | AA |
| R3010 | VRS-CY1JF392JY | X | 3.9k | 1/16W | M-Ox. | AA |
| R3011 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R3012 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R3013 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R3014 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R3016 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R3018 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R3019 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R3021 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R3024 | VRS-CY1JF000JY | X | 00 | 1/16W | M-Ox. | AA |
| R3025 | VRS-CY1JF272JY | X | 2.7k | 1/16W | M-Ox. | AA |
| R3026 | VRS-CY1JF331JY | X | 330 | 1/16W | M-Ox. | AA |
| R3027 | VRS-CY1JF392JY | X | 3.9k | 1/16W | M-Ox. | AA |
| R3028 | VRS-CY1JF683JY | X | 68k | 1/16W | M-Ox. | AA |
| R3029 | VRS-CY1JF392JY | X | 3.9k | 1/16W | M-Ox. | AA |
| R3030 | VRS-CY1JF683JY | X | 68k | 1/16W | M-Ox. | AA |
| R3031 | VRS-CY1JF182JY | X | 1.8k | 1/16W | M-Ox. | AA |
| R3032 | VRS-CY1JF223JY | X | 22k | 1/16W | M-Ox. | AA |
| R3033 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R3034 | VRS-CY1JF182JY | X | 1.8k | 1/16W | M-Ox. | AA |
| R3035 | VRS-CY1JF223JY | X | 22k | 1/16W | M-Ox. | AA |
| R3036 | VRS-CY1JF102JY | X | 1k | 1/16W | M-Ox. | AA |
| R3080 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R3081 | VRS-CY1JF101JY | X | 100 | 1/16W | M-Ox. | AA |
| R3082 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R3083 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R3084 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |
| R3085 | VRS-CY1JF103JY | X | 10k | 1/16W | M-Ox. | AA |

### MISCELLANEOUS PARTS

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|
| P3001 | QPLGZ0810CEZZ | X | Plug, | 32" | | AB |
| P3002 | QPLGN0441CEZZ | X | Plug, | 4Pin | (RAV) | AB |
| P3003 | QPLGN0441CEZZ | X | Plug, | 4Pin | (RAV) | AB |
| P3004 | QPLGN0361CEZZ | X | Plug, | 3Pin | (WF) | AB |
| P3008 | QPLGZ0810CEZZ | X | Plug, | 32" | | AB |
| P3009 | QPLGZ0610CEZZ | X | Plug, | 6Pin | | AB |
| P3012 | QPLGN0241CEZZ | X | Plug, | (2 Pins) | | AB |
| P3013 | QPLGN0241CEZZ | X | Plug, | (2 Pins) | | AB |

## MISCELLANEOUS PARTS

| | | | | |
|---|---|---|---|---|
| SP301 | VSP1205PB09WA | X | SPEAKER ( L ) | AK |
| SP302 | VSP1205PB09WA | X | SPEAKER ( R ) | AK |
| | LHLDK0014PEZZ | X | AC CORD HOLDER | AB |
| | LHLDW0102GJKZ | X | WIRE TIE (20.32 CM) | AB |
| | LHLDW1033PEZZ | X | WIRE TIE (10.4 CM) | AA |
| | LHLDZ0063PEZZ | X | Holder (Insulator Ring) | AB |
| | QCNW-A299WJZZ | X | WIRE FOR MTS | |
| | QCNW-A482WJZZ | X | WIRE (DY) 21FL | |
| | QCNW-A529WJZZ | X | WIRE (YUV) MAIN | |
| | QCNW-A530WJN1 | X | WIRE (AN) MTS | |
| | QCNW-A531WJN1 | X | WIRE (FAV) MTS | |
| | QCNW-A532WJN1 | X | WIRE (RAV) MTS | |
| | QCNW-A534WJN1 | X | WIRE (MTS) | |
| | QCNW-A625WJZZ | X | WIRE (THUNDER) | |
| | QCNW-A871WJZZ | X | WIRE (H) 5 PIN | |
| | QCNW-A872WJZZ | X | WIRE (K) 4 PIN | |
| | QCNW-A873WJZZ | X | WIRE (SPEAKER) | |

## SUPPLIED ACCESSORIES

| Ref. No. | Part No. | ★ | Description | Code |
|---|---|---|---|---|
| | **ACCESSORIES** | | | |
| | RRMCGA035WJSB | X | Infrared R-C Unit | AR |
| | TGAN-A216WJN1 | X | WARRANTY CARD | AB |
| | TINS-B191WJZZ | X | OPERATION MANUAL | AD |
| | TCAUH3045GJZZ | X | CAUTION CARD | AB |

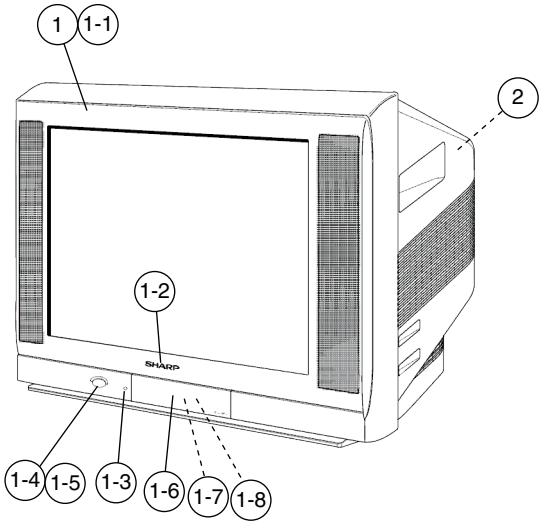
## PACKING PARTS
***NOT REPLACEMENT ITEM)***

| Ref. No. | Part No. | ★ | Description | Code |
|---|---|---|---|---|
| | SPAKCB251WJZZ | X | PACKING CASE | AR |
| | SPAKPA125WJZZ | X | LAMIN FOAM | AF |
| | SPAKXA145WJZZ | X | PACKING FOAM | AK |
| | SSAKA0101GJZZ | X | PLASTIC BAG | AB |

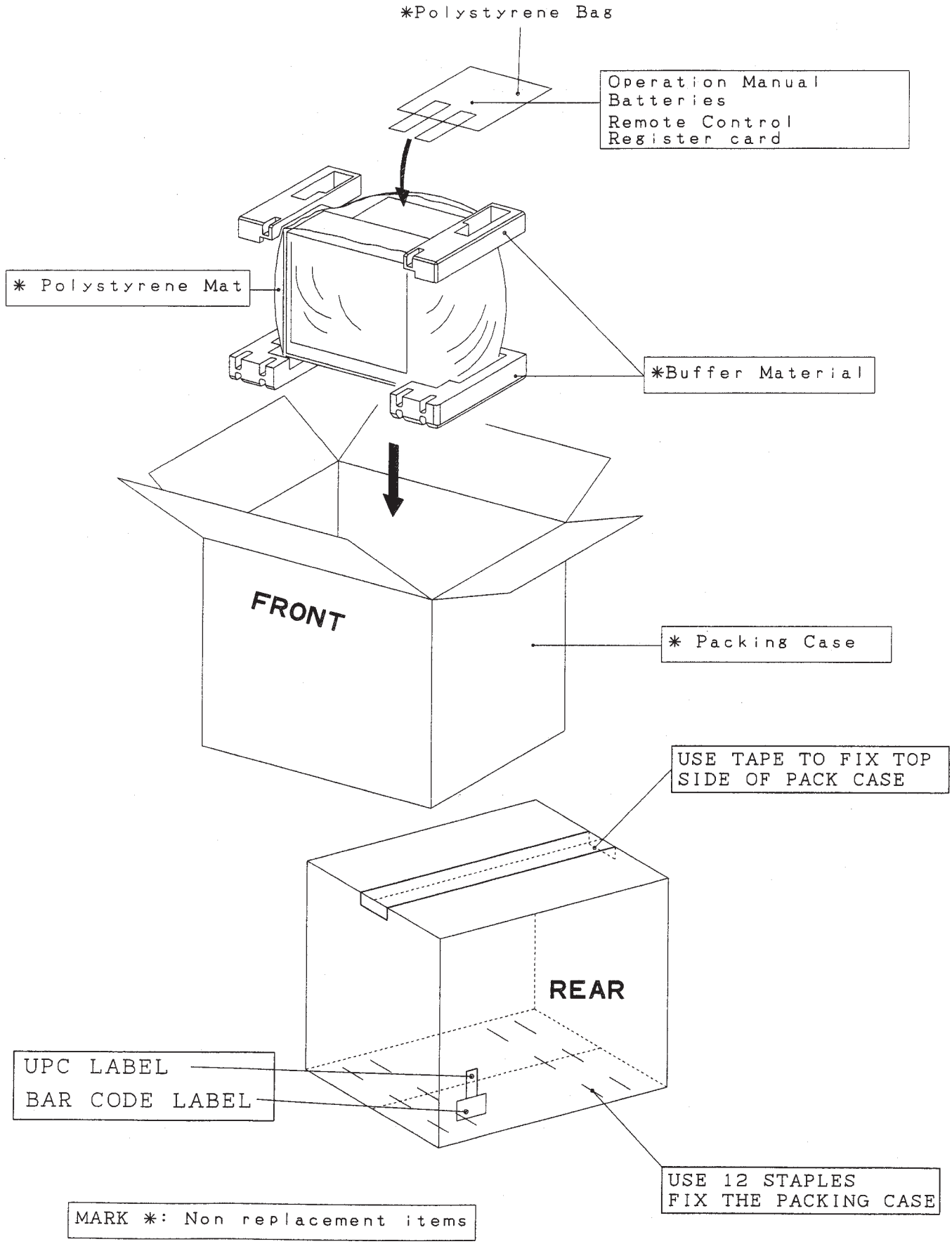
## CABINET PARTS

| Ref. No. | Part No. | ★ | Description | Code |
|---|---|---|---|---|
| 1 | CCABAA323WEH9 | X | Front Cabinet Ass'y | — |
| 1-1 | | — | Front Cabinet | — |
| 1-2 | HBDGB3155CESA | X | SHARP Badge | AD |
| 1-3 | HDECQA119WJSA | X | LED/RC Cover | AC |
| 1-4 | JBTN-A070WJKC | X | Power Button | — |
| 1-5 | MSPRC0005PEFW | X | Power Button Spring | AA |
| 1-6 | GDORFA015WJKC | X | door | — |
| 1-7 | MSPRPA012WJFW | X | Door Spring | AB |
| 1-8 | HINDPA194WJSA | X | Indication Plate | AC |
| 2 | GCABBA088WJKA | | Rear Cabinet | AX |

## CABINET PARTS LOCATION



# PACKING OF THE SET



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| Design and Production Information |
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| Design : SEM |
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